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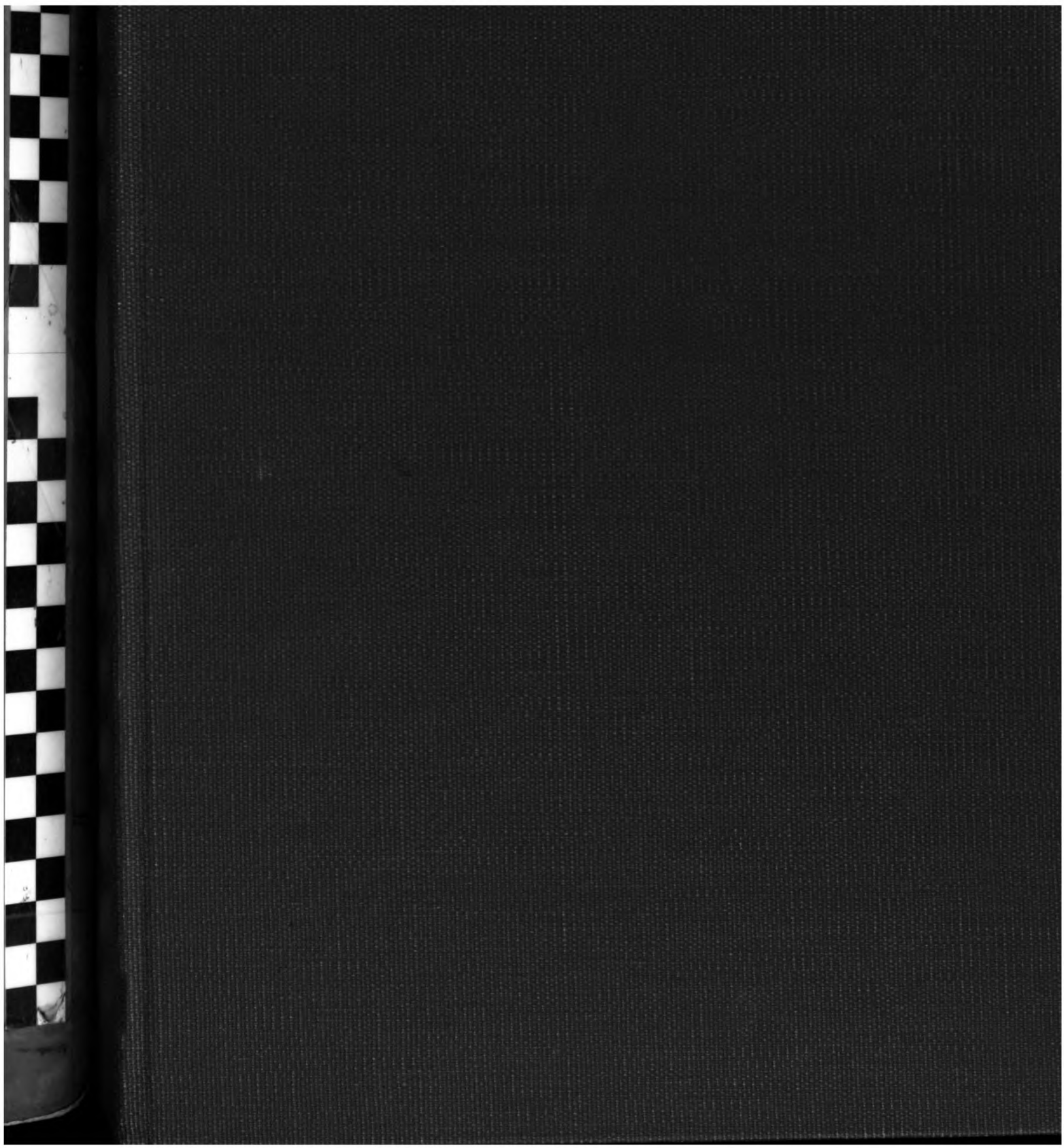
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HOW MUCH SERVICE?—*See Page 5*

MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 1

New York, January 2, 1918

Ten cents a copy
Two dollars a year

DEALERS!

Have You Thought About the Kind of Cars People Will Buy This Year?

Never before has there been a time when motorists will be so particular about the kind of cars they will buy as they will be this year.

In the past they were not so concerned about enduring quality. They bought their cars in most part to meet a two-year service. Hardly anyone expected to use the car for a longer period.

But this year they are making their selections for a long-time service. Prices are constantly increasing, productions are threatened, and no one wants to take a chance at getting a car about the endurance of which there might be some doubt.

Naturally, the dealer who handles a car in which there is universal confidence will have an advantage over his less fortunate competitors.

The Hudson Super-Six now has 50,000 owners. It has established itself in such a way that it is one of the cars that will be favored by those who intend that the car they buy this year will serve them until normal conditions are restored. Hudson dealers have just concluded another prosperous year. They have further established themselves in their various communities. You know, as all must know, that every dealer who has had the Hudson line has placed himself at the very top among the automobile dealers of his community. If you think you could better the Hudson representation in your territory and if you realize the opportunity such a representation offers, why not write us? Perhaps we too feel that the Hudson deserves a stronger representation than it now has.

Hudson Motor Car Company

Detroit, Michigan

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SPEEDMETERS

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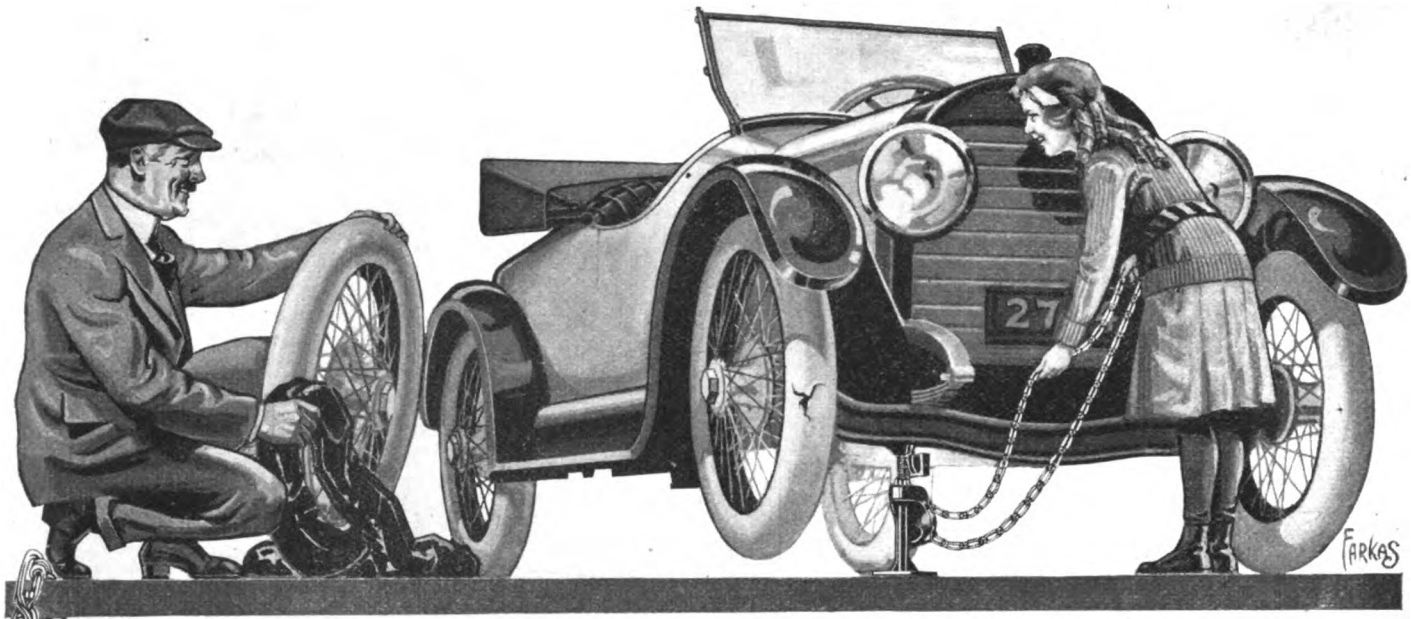
The Van Sicklen Company, Elgin, Ill.

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"Goodness, Daddy! You're Slow—The Car is Already Jacked Up!"

Weed Chain-Jack

It's Child's Play to Operate It

Simply a few easy pulls on its chain lifts or lowers the heaviest car while you stand erect. Up or down—there's no labor.

To operat a Weed Chain-Jack it is not necessary to get down in a cramped, strained position and grovel in mud, grease or dust under a car to work a "handle" that is apt to fly up with unpleasant results. ***To lift a car*** with the Weed Chain-Jack, simply give a few easy pulls on its endless chain while you stand erect—clear from springs, tire carriers and other projections. ***To lower a car*** pull the chain in opposite direction.

Never gets out of order. Gears and chain wheel protected by a stamped-steel housing. ***Chain heavily plated*** to prevent rusting. ***Has a strong cap,*** providing the kind of support from which an axle will not slip, while a ***broad base*** prevents the jack from upsetting on uneven roads. ***Quickly adjusted to any required height*** by lifting the screw and spinning the corrugated "collar" shown in the illustration. ***Try it yourself***—you will never be satisfied with any other jack.

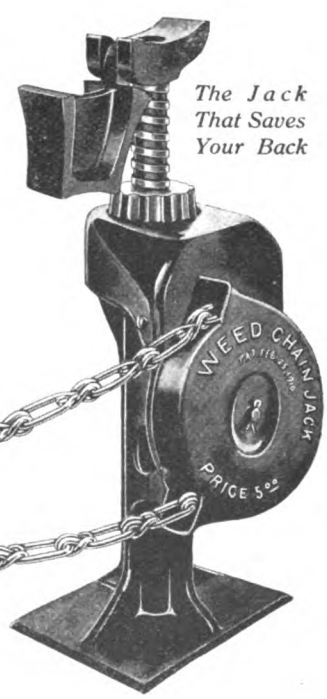
10 Days' Trial

If your dealer does not have them, send $5.00 for any size for pleasure cars or $10.00 for the Truck size, and we will send you one, all charges prepaid. For delivery in Canada send $6 00 for any size for pleasure cars or $12.00 for the Truck size. Try it 10 days. If not satisfied, return it to us and we will refund your money.

MADE IN FOUR SIZES

SIZE	Height When Lowered	Height When Raised	Height When Raised With Aux. Step Up	Price
8 inch	8 inches	12 1-2 inches	14 1-2 inches	$5.00
10 inch	10 inches	15 3-8 inches	17 3-8 inches	6.00
12 inch	12 inches	18 1-2 inches	No Aux. Step	8.00
12 in. Truck	12 inches	19 1-4 inches	No Aux. Step	10.00

The 8 inch and 10 inch sizes are made with an auxiliary step as illustrated. When in operative position this step adds two inches to the height of the jack.



The Jack That Saves Your Back

American Chain Company, Inc.

Bridgeport, Connecticut

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MOTOR WORLD
For DEALERS, JOBBERS AND GARAGEMEN

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BALL BEARINGS
(Patented)



Unless your factor of safety is amply large throughout your machine—even in the so-called minor parts—your whole construction is weakened. Your ability to meet overload and emergency strains is limited by the resistance of the weakest part. The reserve strength of a car or truck is only that of its weakest part or accessory.

The proved service capacity of "NORMA" Speed Bearings—the high factor of bearing safety which they impart to an accessory in which they are used—explain why the makers of magnetos and lighting generators of proved dependability have standardized their product on "NORMA" Bearings.

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FOR



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CARS

This system is sturdy and simple in construction. There is abundant power and steady light. The G & D Starter cranks the **stiffest** engine even in zero weather. That's why this system is successfully in use on thousands of Fords everywhere.

Mr. Dealer

Write for our interesting proposition. Handle Ford Starters. Develop the sales in your territory. Every Ford owner a prospect.

See our exhibit at New York Show, Space C-28

Send for Booklet A-62

GRAY & DAVIS, Inc., Boston, Mass.

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV New York, U. S. A., Wednesday, January 2, 1918 No. 1

How Much Service Should I Give?

Does the question bother you? Have you ever wondered what others think on the subject? Read this story. It offers a solution of the service problem that has eaten dealers' profits for years. Furthermore, this is an ideal time to make the change when everything is changing every day

Facts About Service

1—*Service varies greatly. No two dealers have an identical plan.*

2—*Plans for service may generally be classified as follows:*

(a) *No free service at all. This class is very small.*

(b) *Well defined plan. This class includes quite a number employing service cards, agreements and other forms.*

(c) *Very elastic plan, or possibly no plan at all. There are a great many in this class. Their service is given according to judgment. They endeavor to give as little as possible, but, lacking a well defined plan, generally give much more than they originally intended.*

3—*Free service reduces profits to an alarming extent.*

4—*All dealers desire to see some definite solution of the problem.*

5—*Some free service must be given. It should not be eliminated for two reasons:*

(a) *The public has been educated to expect some degree of free service.*

(b) *The dealer needs to give some free service in order that he may keep in touch with the cars he has sold until he is sure the owner is familiar enough with the car to secure satisfactory operation.*

6—*DEALERS AGREE THAT THE PRESENT IS A GOOD TIME TO DEFINE SERVICE AND PUT REVISED PLANS INTO EFFECT.*

Read This Service Story

SOME time ago Motor World received a letter from E. P. Moriarty of the Moriarty Motor Co., Kansas City, asking if it would not be a good plan for Motor World to recommend the elimination of free service.

Moriarty said he believed many dealers would welcome the change and that this was a very good time to put such a plan into effect. He stated that in case it were not possible to eliminate free service, it could at least be limited and put on a better basis.

Following this, Motor World wrote to 25 large dealers and distributers, who handle thousands of cars a year, asking them for their opinion on this subject. The principal points in their opinion are given in the numbered paragraphs at the beginning of this story.

Printed on the following page is a service plan that Motor World has put together, using the ideas of the dealers and its own experience. The plan, as suggested, provides for some variation in case one dealer wants to give a little more service than another.

It is provided that service should run from about 10 to 35 hours, depending upon the car. Some dealers may want to approach a minimum or a maximum on this and some may even deem it best for their particular business to give more than 25 hours.

It is also suggested that the limit of free service be from 30 to 90 days, and some dealers may even wish to extend this period.

What each dealer does is, of course, dependent upon his own judgment, but it seems desirable that in every case service should be put on a definite basis in order that the dealer may know at the beginning of the year what his service is likely to cost him.

Also, inasmuch as service is purely a cost against sales, it seems desirable that it should be restricted so far as possible, and that has been the motive in

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the suggestion of this plan—*restricted and defined service.*

Section 1 of the suggested plan states that service should be about 1 hour for each $50 of list price, and that the limit should be 35 hours. If a dealer will fit this plan to his car he will find that it will come very near to approximating his service needs. In case of a $1,000 car it is 20 hours, and 20 hours is two or more days of shop labor.

Section 8 states that service should be free for some such limited period as 30, 60 or 90 days, and in case the dealer gives 20 hours within a 30-day limit it will be apparent that this represents nearly an hour a day, *which should be ample for any car.*

Use a Card

Section 2 recommends the use of a card punched in quarter hours. The advantage of a card is that it is a definite, tangible piece of evidence. It is one thing to tell an owner that he will get so many hours of service, but it assumes much more definite proportions when a card is placed in his hands.

Also if the time is punched out every time the card is used the owner is impressed with the fact that he has been given a certain amount of free service, whereas if it were charged up on the books without his seeing the entry he might not appreciate what had been given to him.

Section 3 recommends that nothing less than 15 minutes be punched out. This is an equitable arrangement. A workman who leaves a job, raises the hood of a car, puts it down again and goes back to work, has consumed nearly 15 minutes, because of the distraction of mind due to interruption.

For Education Only

Section 4 provides that the service cover only such things as adjustments and inspections. The idea of this free service is to make the car give satisfactory operation. If the owner punctures a tire it is not the fault of the car, and if he requires a tire repair or a tire change he should pay for it now just the same as though it were next year. *Making the repair without charge would in no way contribute toward making the owner a more intelligent operator, and intelligent operation is the reason for giving free service.*

Section 5 provides that all materials, such as grease and oil, should be charged for at regular rates. There is no reason whatsoever why there should be any other arrangement. The custom of giving grease and oil free during the early days of ownership is simply a custom that has arisen because of the dealer's inability to offset the owner's belief that service is "something for nothing."

Section 6 states that in case any of the card is not used during the service period the remaining value in the card is not to be applied to anything else, such as repairs and materials, although this is done by some dealers. Again let us assert the principle that *the object of free service is to insure satisfactory operation of the car,* and that permitting the owner to take out any unused portion of this card in straight repair work would be the equivalent of handing him so much money, to which he is not entitled under the rules of good business.

Try This Service Plan

On a car selling at $1,000 this service plan will mean:
$1,000 means 20 hours of free service.
At a cost of 50 cents to the shop per hour this means $10.
$10 is 1 per cent of the gross price.
$10 is 5 per cent of the profit in case the discount is 20 per cent.
If the cost of labor (to the shop, not the customer) is $1 an hour the service will cost $20, which is 2 per cent of the gross price and 10 per cent of the profit.

1—Approximately 1 hour of free service for each $50 of list price of car up to 35 hours.
2—This service to be given by a service card in quarter hours. Time to be punched out by service department when work is done.
3—No punch to be for less than 15 minutes.
4—Service card to cover only reasonable demands, such as adjustments and inspections.
5—All materials, such as grease and oil, to be charged for at regular rates.
6—Card is NOT to be applied to repairs or materials in case any portion of the card is not used. It is a provision for emergencies, NOT a gift of labor or a cut in price.
7—Labor on parts that are replaced as defective by the factory to be free and handled as a separate matter from service.
8—Card to expire 30, 60 or 90 days after purchase of car, whether used or unused.
9—Card to be fully explained to buyer and to carry a printed explanation on the back of the card.
10—When the 30, 60 or 90 days are up all free service ends.

NOTE—It is suggested that each dealer who uses this plan work as close to the minimum as his past business practices will permit. For instance: This plan mentions 35 hours as the maximum. It is better to make the maximum 20 hours if possible. This plan suggests time limits of 30, 60 or 90 days. It is best to use 30 days if the dealer can do it. From year to year the service should be cut down until it reaches about 20 hours in 30 days.

Defective Parts Free

Section 7 states that labor on defective parts is to be free and handled apart from service. Obviously if a part is defective, the owner will not expect to pay for the labor in remedying the effect. Whether the charge for installing the part is to be paid for by the dealer or the manufacturer is a matter for adjustment by these two. Holding service to a minimum and handling labor and defective parts separately seems the most equitable arrangement. Were the service period to be made long, and the hours many, in order to provide for possible defective parts the owner would be disappointed in case no parts went wrong because he would have a very large balance of unused labor hours.

Section 9 provides for a full and clear explanation, and it is suggested that the back of the card carry some such message as this:

The Explanation

"We want your car to give satisfactory operation and wish to advise you whenever you believe we can be of assistance. In order that you may feel that you are not presuming on our time in asking us to make inspections and adjustments, we are issuing this service card with Car No. ...., Engine No. ...., which you have purchased this .... day of .....

"This card covers only inspections and adjustments and not ordinary repairs such as may arise through operation of the car.

"Our experience has been that every owner becomes an experienced driver in 30 (60 or 90) days, wherefore this card is issued to expire on the ..... day of .....

"Whenever you wish advice, inspection or an adjustment, bring your car with this card to our service department. Our service men are instructed to give this service without charge to holders

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of cards. Unless the card is presented they will be required to charge for the service.

"Please keep in touch with us and permit us to assist you in getting from your car the large value that we believe is in it."

Section 10 provides that when the period is up all free service ends. This is a most important section of the plan because the whole thing becomes pretty much a farce unless there is some clear definition. *One of the great troubles with present day service is that it is so flexible and elastic that it amounts to having no plan at all.*

In order that readers may get through first-hand information the sentiment on this question as it exists among the largest and most successful people in the car selling field there follow reprints of their letters on the subject. Inasmuch as many of them were quite free and personal in their remarks, names are omitted. Printed elsewhere are some of the service forms and cards used by some of these dealers.

What 14 Big Dealers Said About Restricting and Defining Service

Dealer No. 1

Would Grade Service

Answering your favor of Nov. 21 as to service rendered on cars sold, we believe that it would be possible at this time and perfectly in order to specify a certain number of hours free service that would be rendered on the sale of every car.

I believe that twenty hours free service on the sale of a car under $1,000 and above $500 would be a fair proposition to the distributor or dealer and also to the man buying the car; this service you understand to be rendered by efficient mechanics and by garages that are equipped to do the necessary work quickly.

Under $500 I should say ten hours work free would be plenty.

On cars selling above $1,000 I believe twenty-five hours would be a fair estimate. By making a certain number of hours guarantee for work, a dealer would be in position to estimate his exact cost of service, for a certain period covering a certain number of cars sold, and it would put him in better position to judge where he was going to land at the end of the year, than the present practice.

I do not believe you can sell a man an article running into the money that automobiles do without giving some free service. I do believe, however, as our Kansas friend evidently thinks—*NOW is the time to make a ruling* that would be adopted in time by all the dealers all over the United States, a policy on free service, and we would recommend the above as a basis to work on.

Dealer No. 2

35-Hour Card

I wish to acknowledge receipt of your favor of Nov. 22 regarding the matter of free service on automobiles. It would certainly be a great boon to all automobile dealers if this matter of service could be eliminated, and it certainly would greatly help their batting average from profit and loss account, although *I do not feel that it would be good policy to discontinue this entirely.*

We have given the matter of service considerable thought in the past four or five years, and have finally boiled it down to a thirty-five hour service card which we issue upon the sale of the car. This is divided into sections of fifteen minutes, and each time the car is brought in to have anything done, whether it is ten or fifteen minutes, fifteen minutes is punched out of the card. This card expires by its own limitation, six months from the date of sale, and if the card is not entirely used up, the remaining amount is allowed to apply on an overhaul job, providing it comes within the six months' period.

We keep a duplicate of this card on file at the service station, and whenever work is done, the customer's card is punched, and the card in our file is also punched, so when one is used up they have both been completely punched.

If it could be brought down to a point where the service could be limited to thirty-five hours, I do not think this would work any great hardship on any distributor or dealer, providing each get full price for his cars.

Of course, we do not issue these cards to any purchaser, except those purchased through our retail department. We do not furnish any service on cars sold to our dealers, as they have to assume that burden. We credit our repair department with fifty cents an hour, or in other words, $17.50 on each car sold at retail, so that the expense of service is a part of our biggest overhead.

I would like very much to know what other distributors' angle on this service proposition is, and would be very glad to learn of any better method than which we are now using.

How Do You Like IT?

Read carefully this story of restricted and defined service. Adjust it so it will fit your business, then write to Motor World and tell us what you think about it. Please let us have comments on this highly important subject.

Dealer No. 3

Tried Coupon Book

I beg to acknowledge receipt of your favor of Nov. 22 on the subject of "Free Service."

The writer is of the opinion that the utter inability to make the retail purchaser understand the difference between "service" and actual maintenance of his car *makes it very difficult to offer a service plan that will be understood alike by the owner and the dealer.* This misunderstanding leads to numerous disputes regarding bills and loss of friendship, even when the dealer is trying to give certain definite service to his customers.

We have been trying for many years to perfect a plan whereby we could take care of our customers on those things on which they are entitled to free work, and year by year we have seen the customer demand more and more, utterly ignoring the actual outlay on our part to render this service; and after we have rendered all of the service agreed on in the sales contract the customer would come back and demand still additional service under the plea that the car should never have done this, that or the other.

Our plan has been to give a coupon book, good for a stated number of hours of service per month. We have made these coupons good with various garages and dealers, so that the customer had the privilege of having his car repaired at more than one hundred places in and around this city. I have recently circularized all of our owners and, frankly, found that very few of them were willing to go on record as being at all satisfied with our service, *although we had spent many thousand dollars in taking care of retail purchasers' cars.*

It is almost impossible to define what free service should be, and I, personally, after many years trying out various liberal service policies, am inclined to the belief that we *should extend to purchasers of automobiles the same guarantee that is given us by our respective factories.*

If the customer exacts labor and time in addition to this guarantee, we should collect for it, as we certainly have to pay our workmen, and the service policy is something which has been almost altogether placed on the shoulders of the dealer, even the most liberal factories considering that they have met their obligation when they replace to us material admittedly defective, and any dealer knows that many, many times the cost of these parts is consumed in shop labor in taking out the old parts and putting in new ones. This is an actual cash outlay and represents a goodly portion of the profit we make on automobiles. *If we did not have to spend this money in this way, we could even sell less cars and make a greater profit.*

We find the customer turning in an old car on a retail deal has no conscience whatever with reference to the condition of the car which he turns in. It is short all kinds of equipment and tools. It requires a good deal of overhauling on our part before we can pass it on to a purchaser. There are a thousand and one items we have had to take care of on our second-hand cars, but on the other hand, the purchaser demands each and every single individual article that goes with his car. He will not accept a car that is marred, scratched or defaced in any way and he certainly would not take it short of tools, curtains, top or any of the other equipment. He washes his hands of the old car the minute he induces us to take it in trade, and then in return expects us practically to maintain his new car just as long as his conscience permits him to insist on this maintenance.

This is unfair to a great many of our customers—some of them are reasonable, take good care of their cars and require very little service; others are impossible to satisfy, and if their demands are met, *we would have to return them about* $1.25 *for every* $1 *profit they would permit us to make on the car.*

Therefore, I am decidedly in favor of selling good cars, made by responsible companies and selling them under the factory guarantee, and if the dealer is to give any service, he gives *"paid service" and not free service.*

Service does not mean free work. The fact that we have facilities for promptly taking care of troubles on our car, carry a stock of parts and have men who are skilled in looking after our particular product, is "service," but in the mind of the average automobile dealer the word "service" means something for nothing, and it is this one feature that makes anything approaching free service impossible.

We get service in a great many other lines of business, but it is seldom indeed that we ever get free service. *We pay for service on a Pullman car, we pay for it at theatres, and we pay for it in practically every other line of business—except the automobile business.*

Therefore, you can put me down as being one of the distributors who thinks that the word "service" has been grossly abused and that it is high time to come to a better understanding between the dealer and the owner on the question.

Dealer No. 4

Likes the Dodge Plan

I wish to say in regard to service that we handle Dodge Brothers line, on which we give practically no free service. I am inclosing a book, "True Service," put out by Dodge Brothers, and we live up to the letter of this guarantee.

Now in regard to Hudson cars—commencing Jan. 1, we shall give the regular Automobile Chamber of Commerce guarantee which reads ninety days, and in addition to this provision in that contract, we shall agree with our Hudson owners to replace free of charge all parts that may prove defective within ninety days; this to include free in-

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L. J. Robinson's Service Agreement

It is the desire of the L. J. Robinson Company that every individual purchaser shall receive an equal amount of courtesy and attention in our service department.

For a period of thirty days immediately following delivery of a new car of standard make, thorough instruction will be given in the care and handling of same, and such minor adjustments will be made as are fair and reasonable. All parts that may be replaced as defective by the manufacturer under the standard warranty as stated in the manufacturer's catalog, will be installed without charge for labor for a period of thirty days from the date of delivery. After such time all work will be done in a careful, workmanlike manner and the regular charges made for same.

Vendor and vendee both agree that the above comprises in full the entire agreement between them covering or pertaining to this sale and the service to be rendered and that no agreement of any kind, verbal understandings or promises other than those embodied and specified herein shall be understood to exist.

stallation and transportation charges. At the end of ninety days our guarantee will be completely over and nothing further will be given in the way of free service.

This, we believe, is as far as we can go. We, like your Kansas City distributor, should be delighted to "cut out" free service, but as we have built this business on liberal treatment of our customers, we cannot see our way clear to tighten up to the extent suggested.

Dealer No. 5

Suggests 10 Hours

In answer to your letter of the 21st, will say that I am in hearty accord with your Kansas City friend. I certainly would be delighted to feel that the time would come either now or in the near future, when it would not be necessary to give some free service to the automobile purchasers.

Until the automobile manufacturers install better final inspection departments, however, I feel that if we were to cut off our free service we would be doing an injustice not only to our customers, but to the automobiles we handle. For, with the ordinary run of cars as we get them from the factory, there are a number of little adjustments to be made, adjustments that should be made before the car is finally turned over to the customer.

You will probably argue that we ought to make these adjustments before we deliver the car. There are, however, a good many reasons why this cannot be done advantageously, the chief one being that the car has got to be run before you can know what adjustments are necessary. You can't run tires on pavements without showing wear and while I would like to get away from free service, I believe it is necessary that we continue to give some free service—*I should say approximately ten hours until the factories make the correction suggested.*

There are many methods of arranging how the free service should be given. We have tried it out in different ways, but we find that from our standpoint *the most satisfactory method is to give a specified number of hours.*

Up to two years ago, we gave fifty hours of service on the sale of each new car. Two years ago we cut it to thirty hours, and I can see no reason why it should not be cut to ten hours now. With the exception of the few exaggerated cases, ten hours will cover any little trouble that may develop in the average new car.

I agree with you absolutely that *the time is opportune to make this change if it is to be made.* I will be interested in learning from you at an early date just what the consensus of opinion is. I would like to take the matter up at the next meeting of the association, because if we are to make any change it should be made on the first of the year.

Dealer No. 6

Monthly Inspections

I am particularly interested along this line and will therefore endeavor to outline what we are doing here.

When we sell a new car we give with same six monthly inspections which are free of charge to the customer. These inspections include a thorough greasing and oiling (oil in crank case and transmission not included), the filling of all grease cups, the removal of squeaks and general adjustments. Additional service performed during the month, such as timing valves or ordinary adjustments are made free of charge.

Then there is another class of free labor, that is, trying to rectify the mistakes made by the manufacturer. It is sometimes necessary for us to put in a tremendous amount of time to overcome some mistake which has been made by the manufacturer in the construction of the car.

I have been at a loss to determine just how far we should go on such expense. If the car is wrong I have felt that it was our duty to put the car in shape if possible to do so. In some cases the manufacturer will stand a portion of this expense and in other cases they refused to do so, and it is therefore up to the dealer.

In my opinion it would hardly have been just to charge a customer with something for which he is in no way responsible, and from my experience in the automobile business I cannot see how it is possible for us to avoid making such corrections, that is, providing we want to continue in the business permanently, for it is a satisfied owner that sells the car. If the factory mistakes are not remedied the owner will soon trade his car for something else.

I will be greatly interested in reading your articles on this subject as I believe it is a subject which is bothering nearly every dealer and something which I believe should be handled alike by all dealers.

Dealer No. 7

Satisfaction the Key

Your letter of Nov. 21 at hand, asking if we were in favor of the policy of no *free service*, and in reply to same will say that we are not of this opinion, as the public at large are not mechanical and the automobile unless it had a "guiding hand" in the way of free service until the owner became familiar with it, would have very little if any chance to make a satisfactory showing to the owner.

Our policy in regard to service will not be changed and our slogan in this respect is: "A satisfied customer," which constitutes our service proposition.

Dealer No. 8

Define It!

Have your favor of the 21st, and replying will say that inasmuch as we devote all of our energies to the wholesale business exclusively, we are not in position to cover the field very thoroughly along the line you suggest.

It is our opinion, however, that if the matter of service were correctly defined so as to cover only such service required by reason of improper adjustments or matters of that character, then the term would not be misabused. We do not believe that service should extend to the 101 things that seem to be thought necessary by some retail dealers any more than the same service should be required of any other kind of merchandise.

Therefore, if some universal definition of service could be determined, believe the matter would then be very easy of settlement. If not, however, believe that the proper arrangement would be to confine the service absolutely on the basis of the guarantee as laid down by the factories themselves.

Dealer No. 9

Free Service Under 30 Min.

Your favor of November 21st received. We, as well as all other distributors, naturally *do not like the policy of free service.* However, we have been working on a proposition that has appealed to us, and we think has increased our sales. Here is an outline of our policy.

When we sell a car retail, we replace all defective parts free of charge to the customer within a period of ninety days, after which time all labor on said parts are charged for. If the factory replaces the parts, we in turn replace it with the customer, but in no event do we stand any labor after ninety days.

Now as regards free service; we are glad at all times to accommodate our users with minor adjustments free of charge. So, therefore, we make no charge for any work on our cars, no matter how long they have been out, *that does not require over thirty minutes.* We find that this thirty minutes free service takes us in close touch to our users, keeps cars in better shape, *and enables us to get from our present users a large list of prospective purchasers.*

We have in the past records of the amount of time consumed in this free service department of ours and find that *the users are in about twelve minutes average, that is, in other words, the average time of one free job is twelve minutes.* And at the present time *we are working in our free service department a salesman,* who, not only is able to trade in many of the cars of our present users, but as stated above gets some very good prospective purchasers.

Of course, we would like to sell our cars and be through, but we think that this free service of ours is a necessary evil. However, if you have any suggestions, or any other dealer has any suggestions that will better our service department, we would like to hear it.

Many thanks for sending us this letter, and assure you that at all times we will endeavor to co-operate with Motor World.

The Dodge Definition of "True Service"

This plan constitutes no free service and is enthusiastically indorsed by a number of dealers who use it.

Minimum first cost and minimum per mile operating cost are the essentials most sought after to-day in the selection of a high-grade motor car.

It is universally conceded that a Dodge Brothers motor car at $885 (f. o. b. Detroit) has established a new standard of motor car value.

And as for maintenance cost, it is literally true that gasoline, oil and tires are practically the only expense. In normal service the parts rarely have to be renewed.

Dodge Brothers have chosen to build into their car those qualities which have made it practically immune from the need of service on the part of dealer or factory, except such service as may be caused by the owner's abuse or neglect of the car or by normal wear after long use.

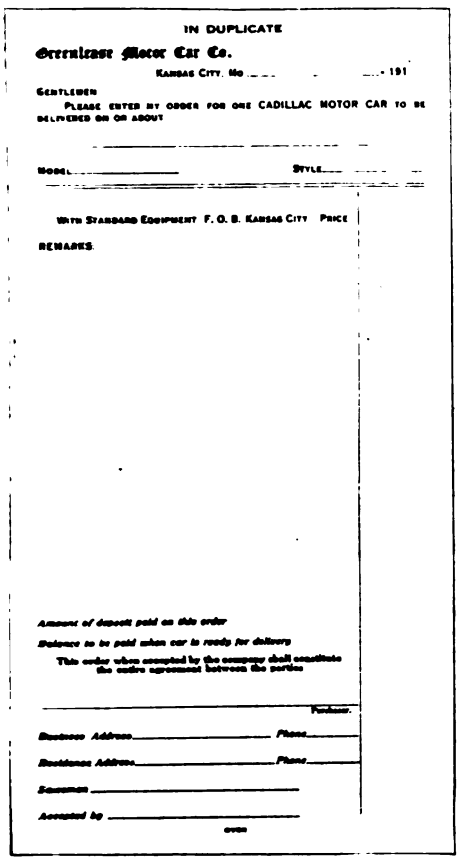
Thus the purchaser pays $885 (f.o.b. Detroit) for the car only, and buys and pays for service only when it is needed.

Before a Dodge Brothers car is shipped from the factory every precaution is taken by over 400 inspectors of individual parts, unit assemblies and finally the car complete, to insure that all material and workmanship is up to the required standard and to make certain that the car is in proper running condition.

We, as dealers, also test each car received by us to make sure that it is in the same condition as when it left the factory.

Therefore, after we deliver the car to our customer in good running order, service rendered by us is properly chargeable in accordance with the ninety days' standard warranty of the National Automobile Chamber of Commerce under which Dodge Brothers cars are sold.

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IN DUPLICATE

Greenlease Motor Car Co.

KANSAS CITY, MO. ____ 191

GENTLEMEN:

PLEASE ENTER MY ORDER FOR ONE CADILLAC MOTOR CAR TO BE DELIVERED ON OR ABOUT

MODEL _____ STYLE _____

WITH STANDARD EQUIPMENT F. O. B. KANSAS CITY PRICE

REMARKS:

Amount of deposit paid on this order

Balance to be paid when car is ready for delivery

This order when accepted by the company shall constitute the entire agreement between the parties

Purchaser.

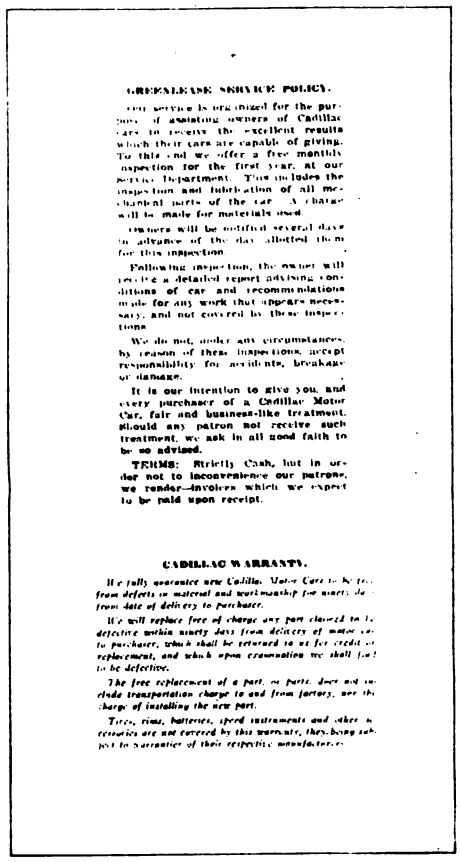
Business Address _____ Phone _____

Residence Address _____ Phone _____

Salesman _____

Accepted by _____

over



GREENLEASE SERVICE POLICY.

Our service is organized for the purpose of assisting owners of Cadillac cars to receive the excellent results which their cars are capable of giving. To this end we offer a free monthly inspection for the first year, at our service department. This includes the inspection and lubrication of all mechanical parts of the car. A charge will be made for materials used.

Owners will be notified several days in advance of the day allotted them for this inspection.

Following inspection, the owner will receive a detailed report advising conditions of car and recommendations made for any work that appears necessary, and not covered in these inspections.

We do not, under any circumstances, by reason of these inspections, accept responsibility for accidents, breakage or damage.

It is our intention to give you, and every purchaser of a Cadillac Motor Car, fair and business-like treatment. Should any patron not receive such treatment, we ask in all good faith to be so advised.

TERMS: Strictly Cash, but in order not to inconvenience our patrons, we render—invoices which we expect to be paid upon receipt.

CADILLAC WARRANTY.

We fully guarantee new Cadillac Motor Cars to be free from defects in material and workmanship for ninety days from date of delivery to purchaser.

We will replace free of charge any part claimed to be defective within ninety days from delivery of motor car to purchaser, which shall be returned to us for credit or replacement, and which upon examination we shall find to be defective.

The free replacement of a part, or parts, does not include transportation charge to and from factory, nor the charge of installing the new part.

Tires, rims, batteries, speed instruments and other accessories are not covered by this warranty, they being subject to warranties of their respective manufacturers.

The Greenlease Service Agreement is printed on the back of the sales contract

Dealer No. 10

Define It!

I do not think that the automobile retail business can be successfully run without giving some free service; for, no matter how good the car is that you sell, there are times that serious defects show up on account of carelessness in manufacturing, which must be taken care of by the dealer; and, if he charges the customer for this work I do not think he will go far in furthering the interests of the manufacturer or in selling machines.

I do believe, however, that anything along the line of restricting the free service given with new cars or better defining to the customer just what is covered by the free service would be a good policy at the present time.

As you may know, for a number of years I have given a definite number of hours of labor with every car sold. On a whole, the plan has been successful; and yet I feel at times that it does not fill the bill, for it would seem that we give away more than is necessary on certain cars.

If the factory built a car perfectly and it went out and gave the owner perfect satisfaction, it seems as though the dealer should have the benefit of this, but with my plan we give the service without any limit; consequently, there is so much money spent for every car sold. It seems to me, in defining a plan of service to be used nationally by all dealers, that it could be done by *listing definitely the adjustments and repairs that would be covered by free service and then set a limit of say three months, which would conform to the average manufacturer's guarantee of parts.*

This plan would protect an owner to the extent of being able to get his car into perfect adjustment without additional cost to him and would also be a protection for three months on breakage of parts, due to defects in material or workmanship. It wouldn't take very much time to define this service and get out the printed sheets, which could go to every customer purchasing a new car. If service throughout the country could be *brought to a definite proposition, I am sure it would help dealers wonderfully and mean a big saving in the end.*

Dealer No. 11

Has Defined It!

I am wondering if your letter of Nov. 21 is the result of thought transmission. Since last Monday morning, the writer and his business associates have devoted a great deal of time on some changes in our service policy along almost the identical lines you have written us about.

The discussion has been a general one inasmuch as I called in all the thinking members of our service, sales, both retail and wholesale, and auditing departments for their different and several opinions. I was much surprised to learn that *the strongest champions in favor of less free service and a more restricted and conservative service policy were the executives in our retail selling department and the retail salesmen themselves.*

I am taking the liberty of enclosing with this letter our new service policy as finally adopted yesterday.

You will find this rather short from the fact that our new plan calls for the enclosed statement to be printed on our order blank so that in signing an order for the purchase of a new car, our customer also signs his acceptance and acquiescence of the service agreement between the vendor and vendee.

You will understand that in the past our service policy as regards free service has been extremely liberal and quite flexible, and it is the opinion of our selling force that a great amount of free service offered by a dealer has ceased to be as important a factor in the closing of a sale.

You will readily see that printing this very conservative policy on our order blank and making it a part of the agreement between the dealer and the purchaser entirely eliminates the possibility of false promises on the part of the salesmen, gives the purchaser a definite understanding of what we intend to give all of our customers, and gives us the added advantage of receiving just and due credit from our customer when occasion necessitates our doing more for him than as outlined in the agreement.

I am sorry to have made this letter so long, but your letter came at a very opportune time, inasmuch as this very thought was uppermost in our minds and I have tried to give you our entire thought in the matter.

Dealer No. 12

Giving Away Too Much

I am in receipt of your communication of the 21st. I agree with your Kansas City distributor and I think it is not only the time but it is fast becoming a necessity. At least I find this is our big trouble. *We are giving away too much.*

Our policy is somewhat of a split one, having two lines of cars. As you know, I handle the Dodge car which maintains a fixed policy all over the country of NO FREE SERVICE. We are expected only to deliver the car to the customer in satisfactory running condition. After that, if there is any labor necessary, the user is supposed to pay for it, and their guarantee for parts is for ninety days only.

Now, personally, I believe that Dodge Brothers have hit the nail on the head. If all manufacturers would establish the same policy and hold rigidly to it, the same as they do, the dealers would be a whole lot better off, and the customer in the long run would be better off.

Dodge Brothers cars are priced and discounted to the agent with the idea in mind that there is no free service.

On our other line, the ——, we are giving a fifty hour coupon book and, of course, their guarantee is for one year on parts.

We do, however, hold rigidly to all repairs being cash, which, of course, causes some trouble, but we are gradually educating our customers.

We have just completed one of the largest service buildings of the Northwest and we hope to develop this service business to a point of showing a profit instead of a loss. I find most distributors think that they have a profit on their service end, but instead they have a good big loss if the department were carrying its just overhead expenses.

This is a subject that I am mighty interested in, and will very much appreciate your views on the proposition and what the verdict is.

Dealer No. 13

Up in the Air

It has been the writer's belief that we have been selling service rather than automobiles for quite a number of years, and seems to me that we have gone so far in this that it is almost impossible to turn back at the present time.

I believe this is the only industry or manufacturing product where the service is thrown on the merchant's hands and left to him to take care of. The manufacturers will furnish the parts at the factory and you are supposed to do the work. The parts end of it is a very small percentage of the trouble of service in automobiles to-day.

The work should be up to the man who manufactures the car as he should build them and put them on the market in such condition that they should stay there. I do not blame he man who buys an automobile for expecting you to do things a certain length of time, but there is no doubt but that this is taken advantage of in a great many cases; that is, as in most all business the men who pay their bills and do it promptly are paying for the men who keep you waiting and perhaps never pay.

If a man would buy an automobile or any part of an automobile without any guarantee with it he could buy it a great deal less than he does now and the manufacturer would be a great deal better off. It is service that costs more than the original article.

To suggest any better way out of it would be a good deal like trying to arrange some way that would suit everybody on the second-hand end of our business. We have tried this and it has not worked out and the guarantee now runs anywhere from nothing to two years. There is no set time. Some manufacturers will give parts for a car that is two years old if they know the parts have been defective in the past, and others will make a great time on living up to the ninety days, which is agreed to by all manufacturers.

Manufacturers have this understanding of ninety days' guarantee in their association but they don't stand to it any more than a second-hand man does on the used cars.

We would like to suggest something that would be possible to make this more like other legitimate business, but it seems to be on the road now to "every man for himself and the one who can hang out the longest and give away the most will be the longest lived."

No doubt your movement is a good one and I feel very sure that you will get a good many very good suggestions. Time service here has been tried and given up on two or three occasions.

In selling high-grade cars where a man has a first-class chauffeur you find the time given very little and the same kind of thing under the care of the owner may be in your place enough to eat up all the profits *if you give him what he thinks he should have.*

The writer will be interested to know how he could give you a better idea, and should have done it on my personal belief of the sit-

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uation, if it had not been that I took it up with our association the day after receiving your letter and found every man had a different idea of the way to service cars, and believed the only way to do it was to let each man fight it out in his own way.

Dealer No. 14

Replying to your letter of Nov. 21, we are of the opinion that entirely too much free service goes with the sale of a motor car. We have tried to cut this down by giving monthly inspection, and am inclosing herewith an outline of our policy, together with an inspection report.

The only charge that is made on inspections is for oil and grease used. If there is any other work necessary on the car, a separate charge ticket is made out for this work, such as burning carbon, tightening bearings, or anything not covered by the general inspection. You will see by this method that we limit the gratis work on a car.

We have been seriously considering reducing the inspections to six or nine, instead of twelve. This would save us considerable on a year's business.

We are at the present time contemplating the erection of a new service and sales station where we will be equipped to make a number of inspections, on which we expect to make a charge; that is, after the owner has been given the number of inspections outlined in our contract.

We find that these inspections and oiling are important to the successful operation of the car, and furthermore, a car that we have traded in that has had the regular monthly inspections since it was delivered, brings a considerably higher price than one that has not had these inspections.

We hope that we have given you the information desired, and with kindest personal regards, we beg to remain.

THIS SERVICE CARD is issued by the Overland Syracuse Co., Syracuse, N. Y., of which Jonn W. Lee is president. Each square is an hour, divided into quarter hours. There are 35 hours. The card is in duplicate, one being kept by the service station and punched whenever the owner's card is punched. The back of the card says: "This card, properly signed and presented at the Overland Service Station, entitles the owner to 35 hours free service on Overland or Willys-Knight automobile bearing serial number 88-4T-No. 7800 and is issued with the intention of furnishing a definite period of time in repairing and adjusting, at the end of which the owner should be sufficiently familiar to accomplish. Not transferable and expires by its own limitation April 3, 1918."



Get the Cash

Read page 11 and see how the idea will fit your business

Plan—Then Act

An editorial by George Harrison Phelps, director of advertising of Dodge Bros., Detroit

THERE is as much difference between planning and doing as there is between winning and losing. Merely to plan is merely to dream, and to dream without transforming your mental visions into living, potential realities is to hit your own business below the belt.

Follow up your plan with action. The world always respects a man who *acts* because he displays *control over crises.*

Charles H. Crasty was publishing the Baltimore *News* back in 1904 when the big Baltimore fire occurred. His plant, with other millions in business property, was ruined. A cellarful of twisted iron and steel was all that remained of the magnificent institution at 9 p. m.

Long before the flames had eaten away the stalwart walls, Mr. Crasty was on one of the few remaining telephone wires still in operation, arranging to publish temporarily on the premises of the Washington (D. C.) *Post.* And at midnight he was on his way to New York. Immediately on his arrival there he telephoned to Adolph S. Ochs, owner of the plant of the Philadelphia *Times.* The *Times* had been merged with the *Ledger* and the plant was lying idle. The conversation lasted just thirty seconds. As told by Jerome P. Fleishmann it was substantially as follows:

"Hello. Is this Mr. Ochs?"

"Yes. Who is it?"

"Crasty—the Baltimore *News.*

"Where are you?"

"I'm in New York."

"Awfully sorry to hear of your loss."

"Everything has been destroyed in Baltimore. How about Philadelphia *Times* plant?"

"That plant is at your service."

"What's the price?"

"Go and take it, and if you and I can't agree upon a price later, why we'll leave the matter to a third party."

"Thanks. That's satisfactory. I'll take it."

Ten minutes after this conversation was concluded arrangements had been made to pack and ship the *Times'* machinery and accessories to Baltimore, where, while the fire was still raging, Mr. Crasty secured an option on a large building beyond the danger zone.

In two weeks the *News* was being printed in its own temporary quarters. And there, too, were being printed the editions of a morning contemporary that had also been burned out. The *News* did not miss an issue.

Mr. Crasty is the type of man who thinks and acts.

Had he only dreamed and "planned" he would have been listed simply as "one of the many who lost." As it was, his action was the talk of the newspaper world for months. Even to-day it strikes up a note of admiration among reminiscent editors.

Think of yourself in Mr. Crasty's place. But don't sit and wait for the test of fire. Carry his example into your daily work. Carry it back into those parts of your business that you are ashamed of. We all have them.

Follow up your plans with action.

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Get the Cash!

IN its issue of Dec. 12, in a story on "Get the Cash," MOTOR WORLD suggested a letter to be sent to customers calling their attention to the change made in the business of the dealer or garageman. This letter has been used with success by a number of readers. It is printed again on this page, with several other letters and comments from readers. Again, the suggestion is made that readers get on a cash basis, or one of very closely restricted credit. Every dollar that you collect from your customers when goods are sold is that much more money added to your capital. It costs you money to carry an open account business.

The letter at the right was printed in Motor World Dec. 12. When it was used by Clinton H. Kenyon of Kenyon's Garage, New London, Conn., he inclosed with it one of the Christmas cards that were sold this year by Motor World. The letter and the card made a fine combination.

What Newark Did

The New Jersey Automobile Trade Association passed a resolution recommending that members go on a cash basis. The resolution was printed in red and blue and hung up in shops and offices. The secretary, Claude E. Holgate, sent the following letter to the members:

Newark, Dec. 17, 1917.

TO OUR MEMBERS:

The resolution printed on the inclosed card was passed by your Board of Trustees at the meeting held Dec. 5. It is in keeping with the policy of the association to do what is best for its members, and it is essential that, at this time, in particular, that the members have the fullest co-operation from one another.

Every member should at once prepare a letter to be sent out during the next few days to every one of his customers, advising him of the necessity for the change in business policy, and calling attention to the fact that the date set for the change is Jan. 1, 1918.

Several of the members have already had this system of cash payments in force for many months, and they have found their customers are willing to co-operate with them when the situation is explained to them.

We all want to co-operate with the Government to the fullest extent; capital must be kept in motion if the financing of the war is to be successful, and you will find that your customers will be just as ready as you are to DO THEIR BIT.

Send your letter out at once. There is a very good sample letter on page 7 of the Dec. 12th issue of the MOTOR WORLD. If you haven't a copy of this issue, you can see one at the business branch of the Public Library on Beaver Street, or here at this office.

Then hang up the inclosed cards in conspicuous places in your establishment—one in your office, and others in your showrooms, shops or other places where likely to be seen by your customers.

Point it out to them.

If there is any help we can give you from this end, do not hesitate to command us—that's what we're here for.

Yours very truly,

N. J. AUTOMOBILE TRADE ASSOCIATION.

C. E. HOLGATE,

Executive Secretary.

Send This Letter to Your Customers

You wish to assist the business world, we are sure, in keeping things running on an even keel. This will be best for you, and for us, and for the nation as a whole.

If business can be kept going at its greatest efficiency prices will remain more stable, money will flow to and fro between buyers and sellers and business will run along in a pretty even way.

We have investigated our business from many angles. We have considered the advisability of raising prices, of changing our organization in various ways, and have concluded that the raising of prices is something we should not do except as a last resort.

We have found, however, that our expenses are greater than ever before and that we are working our capital to the limit. Adding capital would only serve to make our expenses more.

But we can make conditions much better if we may alter our credit business. If we may do without the accounting necessary when our sales are on credit it will mean a great deal to us in our effort to maintain our past service at present prices.

This is not a reflection on the class of credit we have had. It has been good and we have been glad to have it, but every time we charge up a dollar on our books it costs us money. Instead of asking you to pay higher prices we are going to ask you to pay cash at the time you buy.

This new plan will become effective January 1. We are sure you appreciate our object and will be glad to co-operate with us.

We appreciate your patronage of the past and hope it will be continued.

Very truly yours,

Here is a letter used by the Carrollton Motor Car Co., Carrollton, Ohio:

Due to our own small capital and to the tightening of credit by manufacturers and jobbers, beginning Jan. 1, 1918, our business will be conducted strictly on a cash basis.

No, this does not mean that we do not consider your credit good. It means that we consider your credit very good. So good, in fact, that you are able to do a cash business with us. To you this may seem radical; a change you will not be able to meet. It is, however, quite the reverse. It is merely a matter of becoming accustomed to the change.

We all know that if we didn't have bills to pay that we would get along a great deal better. We go somewhere, make a purchase, and have it charged. There we have a bill. We make another purchase, and still another, and so on until we have a big bill. Big bills are hard for us to pay. Why not eliminate these big bills by paying as we go? By paying cash we always know just where we stand. We have no cause for argument about items in our accounts because we have no accounts.

Our prices will be adjusted to render you an increased saving by paying cash. Our service will be improved and with our new building giving us a larger amount of room we will be in a better position to care for your trade. There will be no favoritism shown; everyone will be treated alike, so if you don't ask for credit after Jan. 1, it will be unnecessary for us to refuse it.

We wish to thank you at this time for the business you have given us in the past and hope that we will continue to be favored. We know YOU will like this method of doing business.

Yours very truly,

CARROLLTON MOTOR CAR COMPANY.

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Standardize All War Truck Repair Work

Standard Method of Doing Every Repair Job—Buildings Standardized, Too, as Are All Tool Kits

WASHINGTON, D. C., Dec. 29—In line with the general plan of standardization pursued by the transportation division of the Quartermaster Corps under direction of General Chauncey B. Baker comes the new plan of standardization of repair base units for service at home and abroad, by means of which there will be standardized repair shop buildings, standardized corps of mechanics, standardized systems for repair and standardized repair equipment.

Following beginning of production the B heavy-duty war trucks and completion of designs of the A and AA sizes, the Military Truck Production Board started on its work for the maintenance of the trucks in France. George C. Randles, in charge of the manufacturing equipment, together with James F. Bourquin, head of the production work, made a thorough investigation of truck repair on the Mexican border, learning the achievements and the errors of the past. They found some shops excellent, others not so good, with the chief problem that of the inefficient soldier mechanic, soldier foreman and soldier superintendent, who were found among the many soldier mechanics, foremen and superintendents at work.

Many repair jobs were found to be wrongly handled because of ignorance, others because of different opinions between mechanics, and still others because of inferior machinery and tools. The result was the decision to standardize insofar as possible.

Buildings to Be Standardized

The repair base units have been planned on standardized lines. Each average building will have 230,000 sq. ft. of floor space. All buildings will be exactly alike with stock rooms, tool rooms and racks the same in each. And the general plans for these buildings are so arranged that in event the building should be made larger or smaller the change in the plans can be made within a very few minutes by adding or taking away the number of bays required, without affecting the efficiency of the plant. These plans also include consideration of light, heat, power, etc., which can be increased or decreased at will along similar lines.

The value of this plan lies in the fact that where workers are taken from one plant to another they can at once enter upon their duties without strangeness, knowing where to find stock, accustomed to the tool racks, used to certain methods which can be pursued equally well in the new shop. For example, the Quartermaster Corps is now building a large mechanical repair shop unit at Baltimore, where 2000 mechanics will work on the trucks coming overland from the factories to the seaboard. Construction of this plant and also of the warehouse which will adjoin it and serve as a commissary to the trucks began this last week. Completion is expected in 90 days. If after these mechanics have been thoroughly trained at the truck repair work in this shop, the War Department decides to send them to France, it will be a simple matter. The men can be transferred readily and when they enter the shop in France will find the stockrooms, tool, machinery, light, power, laboratories, everything exactly as in Baltimore.

Manual for Repairs

The next standardizing step is that of rebuilding and repairing. There are certain fundamental principles of mechanics for this work, and the plan provides a system that insures that each mechanic will follow the proper methods. A book to be known as the Shop Manual is now being compiled which so definitely lays down the rules to be followed for repairs that it will be impossible for a mechanic or a foreman to use his own judgment. The plan insures uniform work at every base and on every job. Instead of depending upon the foreman to say, for example, that a cylinder is not in need of regrinding, the workers will turn to their manual, which strictly defines the cylinders that are out of round or tapered beyond good practice and definitely specifies the regrinding and the oversize, which is also standardized. This same applies to the crankshaft, where if the pins are egg shaped all must be ground to a certain undersize to clean up properly. In this way every job must be done thoroughly and there will be no opportunity for men to use individual judgment or to experiment at a time when experiment may mean a penalty of lives. The shop manual is now being compiled and will be completed in the near future.

All tools and machines are being standardized in sofar as this is consistently possible with good judgment. All machine tools, for example, are standard belt driven because belt-driven machine tools are easier to secure than motor driven, because there is always possible the conflict of alternating and direct currents and of different voltages in the use of the motor driven, and because with a line-shaft drive if emergency demanded a gasoline engine could be attached and used efficiently.

All Tool Kits the Same

All mechanic's tool kits will be standardized, each mechanic of the different classes carrying identical tools, which will be subjected once a week to military inspection much the same as with the arms of the infantry soldier. This inspection will apply particularly to the finer tools, which have to be almost perfect to insure efficient results.

Thus between the standardized shops, machines, tools and repair instructions of the shop manual, every truck entering the shop for repair will proceed through exactly the same movements from entrance to exit that every other truck in its class will pass.

The standardization extends also to the mobile repair units, the trucks carrying small repair shops aboard for making field repairs. These will carry standardized repair tools and machinery and plans are now being made to perfect every detail of the repair mechanism to the highest degree. For example, a large drilling machine in the original equipment has been eliminated and a small drilling attachment substituted that is more efficient, and the original lathes standing on two legs which were unable to withstand the shocks over the roads and usually resulted in lathes out of line, have been changed so they rest on a center pedestal over a cabinet, insuring firmness of position.

The numerous results of this system are quickly apparent. They include:

The making of good mechanics versed in the fundamentals of efficient repair work.

The elimination of the "hammer and cold chisel" sort of repair man, well known to the average motorist.

The training of men mechanically and with a discipline that will make them most valuable in civil life.

The elimination of all chance for experiments. Familiarity with shops and systems instead of strangeness with every transfer.

A repair system that insures maximum efficiency in the maintenance of the quartermaster trucks in France.

The average base repair unit is expected to hold 1163 men under the direction of a major.

The plan of organization of this general scheme of maintenance includes:

Supervision of standardization by George E. Randles, whose duties include provision for standardizing all buildings, power plants, stock rooms, warehouses, lighting, heating, plant transportation, manufacturing equipment and methods, together with various details connected with modern plants and manufacturing practices for the work to be performed and the compiling of all data necessary. He is being assisted by:

These Men Direct the Work

F. A. Barnes, industrial engineer of Cleveland, Ohio, whose duties include building design, building construction, cranes, power plants, water, heating, lighting and sewage.

D. C. Selheimer, production engineer, formerly with the Packard Motor Car Co. and the Hal Motor Car Co., who is working out the details of all manufacturing equipment, such as machine tools, small tools, mechanic's tools, shop transportation, arrangement of departments and manufacturing layout details. He will be assisted by Lieutenant Rogers.

Major North, who will provide complete plans and specifications for recommendations for procurement of various items; follow up purchases and maintain purchasing records.

Lieutenant Lord, who will work out the shop manual of standardized operations, together with parts lists and instruction books of the Class AA, A and B trucks.

B. H. Eaton, who is arranging details of plant systems, including tool cribs, warehouses, receiving, stockroom and shipping.

Major Parramore, an army officer, who will act in a consulting capacity. Major Parramore has seen active truck repair service on the Mexican border.

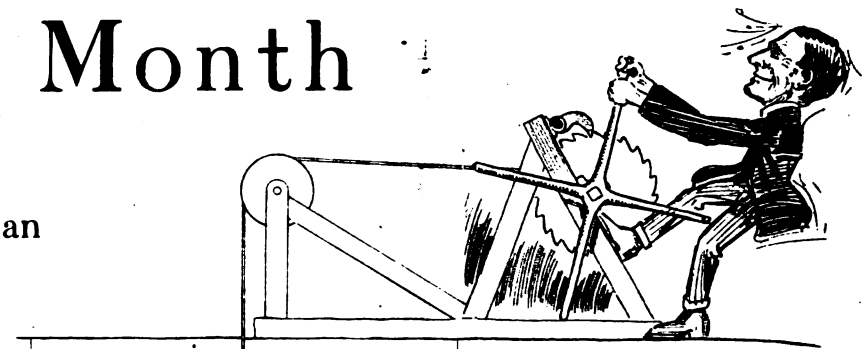
There will also be an additional department of employment to handle the induction of mechanics and the enlistment of those over the draft age.

All of the above work as outlined enters into the regular duties of the Military Truck Production Board, which has had charge of production and maintenance and which, as announced last week, also includes in its supervision now under Christian Girl, chairman, the direction of the engineering designs for all quartermaster engineering work.

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A Notch a Day—100% a Month

By Ray W. Sherman



"WELL," said Tommy Trumbull, as he rose from his desk after a busy forenoon and stretched, "it's a New Year, isn't it? Did you do your resoluting early?"

"I didn't do much," replied Reilly, the Sennett dealer in Callawassa. "I have always been rather prejudiced against this making resolutions January first and then pigeon-holing them until the next January first. It always looked like bunk to me. It seems to me such practices only make a man worse. He is always starting for somewhere and never getting there. That breeds bad habits.

"I have always tried to keep myself checked up from day to day the year around—but—I don't know—I think there are some things I ought to go at systematically this New Year's. Things have been changing so rapidly, our business has been skidding this way and that, I have had to dive into so much new work that I have become sort of disorganized personally. I am not working as well as I used to."

"We surely have had to spin a bit," agreed Tommy. "I've been all balled up a few times since last summer. I get a groggy feeling."

"The thing for us to do, I guess, is to sit back for a few minutes and give ourselves a good once over. I know I've been slipping. I've got to pull my efficiency back to par."

"How?"

A Little Every Day

"A little a day is about the only way I see for building a lasting increase in efficiency. This rushing from nothing to a hundred per cent over night isn't all it's cracked up to be.

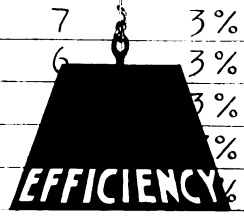
"I know I've slumped badly in some respects. So I'll simply have to start pulling up again.

"Did you ever stop to think, Tommy, that if you make yourself three per cent more efficient every day it amounts to about one hundred per cent in a month? And that if you can keep that up for six months you are six times as efficient as you were when you began?"

"No—I hadn't."

"And do you realize what little things constitute three per cent efficiency? Supposing our hours are from 8 to 12 and from 1 to 6. That's nine hours—540 minutes. Supposing you are 15 minutes late. Do you realize that that is about 3 per cent of your day? If you start coming in on time you become 3 per cent more efficient—even if you don't work any better than you worked before.

DATE	PERCENT
JAN 31	3%
" 30	3%
" 29	3%
" 28	3%
" 27	3%
" 26	3%
" 25	3%
" 24	3%
" 23	3%
" 22	3%
" 21	3%
" 20	3%
" 19	3%
" 18	3%
" 17	3%
" 16	3%
" 15	3%
" 14	3%
" 13	3%
" 12	3%
" 11	3%
" 10	3%
" 9	3%
" 8	3%
" 7	3%
" 6	3%
"	3%
"	%
"	%
" 2	3%
JAN 1	3%



Things to Do

"And supposing you have been reading your mail as it came in and then reading it all over again as you answered it. It takes almost twice as much time. Now—if when you read it you make notes on the margins to guide your answer you have made yourself more than 3 per cent more efficient.

"If you have been doing repair work without getting your tools organized before you start you have a chance for much more than 3 per cent. If you have been wandering aimlessly around, physically and mentally, in your work you have a chance for many 3 per cents. If you have been one of these wait-a-minute helpers you have many possibilities. A do-it-now helper is worth several of the wait-a-minute variety.

"So, you see, 3 per cent is such a little thing. But a month of 3 per cents makes nearly 100 per cent.

It Counts Up

"If you will give yourself a good once over maybe you'll find quite a few chances. But you must give yourself a once over almost every day if you're going to do 3 per cent a day, for, unless you do that, your undone 3 per cents accumulate and then become too big a job for any one day. You get behind.

"Sometimes a plan like this will work. Sometimes it won't. Some people—and there are millions—can never get on their feet and reach after that first 3 per cent. If they could they would go after the next one—and the next one—and then there wouldn't be so many people in the world who say they never had a chance.

"Tommy, did you ever read Russell Conwell's 'Acres of Diamonds'?"

"No."

"Go get it. Read it. Then tell me who's to blame if you don't make a million dollars."

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Winter Business

Tear
Em
Up!
Attaboy !

Attaboy!



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Judge Did It! You Can Do It!

This Is What Judge Did

He had printed on his letterhead a quantity of letters like that shown at the right. He mailed these to the Ford owners in that section, calling their attention to the fact that his shop specialized in Ford repair work.

The result was that his shop was filled with work and he is getting Winter Business whereas he might have gone through the winter in the old-style profitless way had he not made this very easy and inexpensive effort. It pays. Try it.

Don't imagine you can't do this because it necessitates fancy work. The Judge letter wasn't even filled in. It was not even given an imitation signature. It was a mimeograph job throughout.

Here Is Another

The Lamar Motor Sales Co., Lamar, Col., sent to its trade the letter that is reprinted below. It was mailed Oct. 26. It is one of a series that is bringing Winter Business to this company, even though Lamar is not a big city and is in a very cold country.

With these letters go small mailing inserts. One of them gives the price lists of tires. Another—shown below on this page—calls attention to the tires and accessories the company sells. The letter follows:

The Lamar Letter

Perhaps when you receive this little letter you may not need a new car or any article for the one you now own.

But we want to tell you about our Auto Store here on Main Street that grows bigger and better each day.

More car owners are visiting our Auto Store each day. 'Tis the most interesting place in town for the gentleman or lady that motors.

Our stock of auto needs comprises everything that makes motoring a pleasure.

Our stock of cars consisting of DODGE BROTHERS, HUDSON, and BUICKS are all Standard Cars. Ask anyone that owns one; they will tell you how good they are. Or perhaps you own one, and if that be the case you already know.

In our Tire Department you will find all kinds of Tires for all makes of cars, such well-known lines as GOODYEAR, UNITED STATES, GOODRICH, MICHELIN, REPUBLIC, and BLACKSTONE. Every tire carries the maker's guarantee. We prepay the postage on all mail orders.

We make no charge for putting on tires. Have you seen our new ELECTRIC AIR PUMP? It's a wonderful little machine.

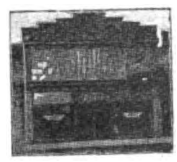
We make a specialty of FORD SIZE TIRES. If you own a Ford you ought to see the new Ford De Luxe Tire.

Then there are a hundred and one accessories that you will find in this EXCLUSIVE AUTO STORE. Yes, we call it Exclusive Auto Store for that is what it is and the only one in the Arkansas Valley.

We want you to come and see us; bring the family or neighbors. We are always glad to see you, and it's no trouble to show merchandise.

THE LAMAR MOTOR SALES CO.

THE JUDGE AUTO COMPANY



PHONE 331

THE HOME OF THE FAMOUS Ford

AUTOMOBILE ACCESSORIES
SUPPLIES AND REPAIRS

SPRING VALLEY, N. Y.

November 10, 1917.

This is the day of specialists or the person who can do one thing better than another fellow. The day of the so-called "Jack of All Trades and Master of None" has passed and the master of one has taken his place. The art of Specialization probably applies more closely to the automobile industry than to any other. Every machine is constructed mechanically different.

We are specialists on Ford cars, having studied Fords and their construction for the past five years and have confined ourselves almost exclusively to the repairing of them. We have learned all the "short cuts" so that absolutely no time is lost, as every minute counts when a car is in trouble. And if such is the case, we can find the trouble and fix it more quickly and thoroughly than anyone else because we are "Specialists."

Our stock of Ford parts is a complete one and is kept in that condition at all times. In opening our Nyack Branch we believe that we will fill a long felt want of Ford Owners for real Ford Service in this section of the county. Our Spring Valley Garage has given this kind of service for the past three years with the result that we have sold over 1000 Ford cars during that period. Therefore we respectfully request you to give us a chance to make good with you.

Trusting we may have the pleasure of a personal inspection by you of our new garage on Burd Street, near the Hotel St. George, we beg to remain

Very respectfully yours.
THE JUDGE AUTO COMPANY.

Ed. S. Aker,
Manager Nyack Branch.

THE
LAMAR MOTOR
SALES CO.

THE HOUSE OF QUALITY CARS

TIRES
AND
AUTOMOBILE
ACCESSORIES

RIGHT ON MAIN STREET

LAMAR, COLO.

ALL KINDS OF NEEDS

Auto Accessories

Just a few of the 100 and one things you will find in this Accessory Shop.

Seat Covers	Spotlights
Horns	Tire Chains
Tire Covers	Batteries
Flashlights	Lamp Globes
Car Locks	Polish
Oils	Greases
Fan Belts	Spark Plugs
Tire Repair Kits	Hood Covers
Sponges	Blowout Patches
Tools	Tool Boxes
Chamois Skins	Bumpers
Auto Robes	Radiator Covers
Goggles	Tire Locks
Auto Parts	Auto Tops

In fact every little need for the Auto.

Come and See Us.

213 South Main Street.

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Tires and Tubes

MOTOR WORLD GUIDE

Tires and Tubes

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
ACME	Plain	16.00	17.20	s18.10	23.00	s23.90	24.40	25.80	s27.50	s30.80	s31.90	33.20	34.30	35.50	36.70	38.00	s45.30	46.70	48.30	49.60	51.10	52 60	57.70	59.50	61.40	s76.80	s78.90
	Kam Tread	.....	s17.90	.....	s24.20	s25.10	25.60	.....	.....	.....	s33.50	35.00	36.10	37.40	.....	.....	.....	qc49.00	50.70	52.10	53.70	55.30	60.60	62.60	64.30	.....	.....
	Dimple	18.40	19.60	s21.00	26.40	s27.40	28.00	29.80	s31.60	s35.40	s36.70	38.30	39.60	40.90	42.20	43.70	s52.10	53.70	55.50	57.10	58.80	60.50	66.30	68.50	70.50	s88.30	s90.70
	Hemisphere	20.20	s21.60	.....	29.00	.....	30.80	32.70	.....	.....	s40.50	qc42.10	43.60	44.90	46.40	s48.10	.....	.....	qc61.00	62.80	64.70	66.50	s73.00	s75.20	77.70	.....	.....
	Gray and Red Tubes	3.65	3.85	4.15	4.95	5.15	5.45	5.85	6.05	6.05	6.25	6.40	6.65	6.75	6.95	7.15	8.15	8.35	8.45	8.60	8.80	9.05	10.00	10.30	10.55	11.20	11.50
ADVANCE	Plain	s12.75	s13.40	.....	s17.45	s18.35	20.40	s23.80	.....	.....	s26.75	27.25	28.55	29.15	30.15	31.05	.....	s38.05	s39.25	41.10	41.75	43.45	.....	s46.90	s49.65	s74.55	.....
	Non-Skid	s13.35	s14.10	.....	s18.25	s19.30	21.40	s24.95	.....	.....	s28.00	28.60	29.85	30.65	31.50	32.60	.....	s39.95	s41.30	43.10	43.90	45.60	.....	s49.20	s52.15	s78.20	.....
AJAX	Plain	s13.65	s14.45	s18.75	18.60	s19.50	22.55	26.95	28.85	s28.95	30.25	30.80	32.10	32.65	34.10	34.55	.....	.....	43.90	45.55	46.10	47.80	s52.45	52.50	54.45	.....	.....
	Non-Skid	s15.30	s16.10	s.....	s21.35	s22.20	25.30	29.70	.....	s32.25	33.55	34.10	35.40	35.95	37.40	37.85	qc46.10	qc52.45	48.30	49.95	50.50	52.20	56.85	s56.90	58.85	s78.35	s79.30
	Road King	s14.70	s15.55	.....	s19.95	s20.95	24.25	.....	.....	.....	32.50	33.10	34.55	35.10	.....	37.10	.....	48.40	48.95	51.20	52.05	53.90	61.15	s61.40	63.25	.....	.....
	Gray Tubes	3.20	3.00	3.40	3.75	3.85	4.00	4.30	4.50	4.75	4.85	5.05	5.25	5.35	5.50	5.70	6.15	6.35	6.50	6.60	6.85	7.00	8.40	8.50	8.60	9.20	9.35
	Red Tubes	3.50	3.75	4.00	4.60	4.75	4.90	5.15	5.40	5.75	5.90	6.05	6.25	6.35	6.50	6.70	7.60	7.80	8.05	8.30	8.50	8.75	9.90	10.00	10.15	10.85	11.05
AMAZON	Ribbed	.....	qs16.75	.....	qs21.70	.....	qc25.05	.....	.....	.....	.....	qc33.90	qc36.30	qc36.90	.....	.....	.....	.....	qc49.20	qc51.45	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs16.70	qs17.65	.....	qs22.85	.....	qc26.35	.....	.....	.....	qs34.75	qc35.70	c38.20	c38.85	.....	.....	.....	qc50.35	c51.80	c54.15	c54.90	qc57.45	c64.75	.....	c66.95	.....	.....
	Red-Gray Tubes	3.15	3.50	.....	4.10	.....	4.25	4.50	.....	.....	5.70	5.90	6.15	6.25	6.40	6.50	.....	7.20	7.30	7.45	7.65	7.95	8.55	9.00	9.10	9.25	10.50
AMERICAN	Ribbed or Plain	15.00	16.00	.....	20.45	22.10	24.05	.....	.....	.....	32.30	33.00	34.70	35.45	.....	.....	.....	.....	47.40	49.60	50.30	.....	58.35	.....	61.90	.....	.....
	Triple A Non-Skid	15.80	16.80	.....	21.35	23.00	24.95	.....	.....	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	53.65	59.40	60.30	62.95	.....	.....
	Seal Brown Tubes	3.00	3.25	.....	3.75	3.80	3.85	4.20	.....	.....	4.65	4.80	5.00	5.15	.....	5.60	6.20	6.25	6.30	6.40	6.55	6.70	7.65	7.75	7.90	9.35	9.50
	Red Indian Tubes	3.25	3.50	.....	4.20	4.25	4.30	4.60	.....	.....	5.40	5.50	5.70	5.80	6.00	6.15	6.95	7.00	7.10	7.20	7.35	7.65	8.60	8.85	8.95	10.20	10.40
ARABIAN	Fluted Tread	.....	qs15.60	.....	qs20.05	.....	24.45	.....	.....	.....	s31.05	.....	32.80	33.00	.....	36.05	.....	.....	qc43.45	s46.75	48.45	49.05	.....	.....	54.40	.....	.....
	Non-Skid	.....	qs16.40	.....	qs21.10	.....	25.65	.....	.....	.....	32.65	qc33.90	34.45	34.65	.....	38.95	.....	.....	qc45.60	49.05	50.80	51.50	.....	.....	57.10	.....	.....
	Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
ARCADIA	Plain	qs14.00	qs15.20	.....	s19.60	.....	22.25	27.85	.....	qs32.70	s29.80	30.40	31.65	32.60	37.60	34.55	.....	.....	43.40	45.25	45.95	47.90	53.25	s59.15	56.00	s99.75	s103.25
	Non-Skid	.....	qs15.95	.....	s20.60	.....	23.45	29.15	.....	qs34.40	31.45	31.90	33.35	34.25	39.45	36.45	.....	.....	45.70	47.45	48.25	50.25	55.75	s62.40	58.95	s105.00	s108.50
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
ARCHER	Ribbed Tread	.....	.....	.....	.....	.....	qc35.90	.....	.....	.....	.....	qc45.15	qc46.30	qc47.50	.....	qc49.90	.....	qc51.90	qc53.25	qc54.55	qc55.80	.....	qc65.85	qc67.55	qc68.90	.....	qc83.15
	Non-Skid	.....	.....	.....	.....	.....	qc37.80	.....	.....	.....	.....	qc47.10	qc48.25	qc49.45	.....	qc51.80	.....	qc53.85	qc55.20	qc56.45	qc57.70	qc58.95	qc67.80	qc69.50	qc70.80	.....	qc85.10
	Gray Tubes	.....	3.15	.....	3.25	.....	3.40	.....	.....	.....	.....	4.60	4.75	4.85	.....	5.10	.....	6.00	6.05	6.15	6.25	6.35	7.35	7.50	7.65	.....	8.50
	Red Tubes	.....	4.15	.....	4.25	.....	4.40	.....	.....	.....	.....	6.00	6.15	6.30	.....	6.55	.....	7.80	7.85	8.00	8.15	8.20	9.55	9.75	9.95	.....	10.80
ARMSTRONG	Red Tubes	.....	4.00	4.50	4.75	.....	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.60	9.45	9.60	9.75	11.60	11.75
	Plain	.....	19.00	.....	23.75	.....	27.00	31.25	.....	.....	37.00	38.00	40.00	40.50	44.50	42.00	.....	.....	54.50	57.00	60.50	.....	66 00	73.00	68.50	.....	.....
	Non-Skid	.....	21.25	.....	26.00	.....	31.00	34.25	.....	.....	40.75	42.00	43.00	43.50	48.75	46.00	.....	.....	59.50	62.50	66.50	.....	72.50	80.00	74.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	40.05	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	45.10	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
BALTIMORE	Concord	20.17	20.64	.....	25.07	o 27.80	29.50	32.07	.....	.....	o 34.45	35.44	o 36.72	38.02	o 39.47	40.75	.....	45.72	47.23	o 48.68	51.36	o 52.77	o 59.59	62.45	o 65.12	o 86.21	93.51
	Box Tread	22.19	23.27	.....	29.10	o 30.03	33.22	36.08	.....	.....	o 40.15	41.47	o 42.68	44.22	o 45.65	48.18	.....	50.00	51.81	o 54.89	59.62	o 60.83	o 67.76	70.40	o 72.05	o 89.65	104.28
	Tubes	3.25	3.34	.....	4.30	4.45	4.60	4.95	.....	.....	5.45	5.55	5.75	5.95	6.05	6.20	.....	7.25	7.45	7.60	7.85	8.10	8.90	9.15	9.45	.....	11.05
	Wil-Lox Non-Skid	.....	qs14.10	.....	qs18.25	qs19.30	q21.40	.....	.....	.....	qs28.00	.....	qc29.85	qc30.65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
BATAVIA	Plain	.....	qs14.35	.....	qs18.25	.....	qc21.35	.....	.....	.....	.....	qc29.05	qc30.45	qc31.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ribbed	.....	.....	.....	.....	.....	c23.70	c26.90	.....	.....	.....	qc32.30	c33.90	c34.60	qc36.20	cs36.75	cs43.15	qc44.55	c46.00	c48.10	c48.75	cs50.95	c56.40	.....	c59.80	.....	.....
	Security Tread	qs14.40	qs16.80	.....	qs21.35	qs23.00	c24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	cs45.45	qc46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	cs97.25	cs99.00
	Gray Tubes	2.95	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	9.20	9.45
BERGOUGNAN	Plain	s14.85	s17.70	.....	s21.60	s22.85	25.20	s27.85	.....	35.25	s30.90	32.85	35.20	37.20	s38.00	s40.00	s46 55	47.60	50.35	50.95	51.45	s53.05	59.45	60.70	62.35	s80.40	83.10
	Non-Skid	s16.70	s18.10	.....	s25.20	s26.30	27.55	s29.55	.....	39.65	s34.90	36.50	39.30	40.75	s42.65	s43.70	s52.20	52.90	53.85	55.05	56.70	s59.10	65.15	68.15	69.65	88.75	91.80
	Red Tubes	3.75	3.80	.....	4.45	4.80	4.85	5.20	.....	6.60	6.05	6.25	6.60	6.75	6.95	7.15	7.35	8.10	8.20	8.30	8.65	8.90	9.70	10.00	10.15	11.15	11.20
BESAW	Blackford Non-Skid	.....	qs15.70	.....	qs19.95	qs21.35	c23.60	.....	.....	.....	qs31.50	qc32.05	qc33.90	34.5	.....	.....	.....	.....	.....	cs48.60	.....	.....	.....	.....	.....	.....	.....
	BeSaw Non-Skid	.....	24.25	.....	30.30	31.35	35.05	38.00	.....	.....	42.30	43.70	45.00	46.55	48.10	50.75	.....	.....	54.60	57.90	62.75	64.10	71.35	74.15	75.90	.....	.....
	BeSaw Plain	.....	20.50	.....	24.90	27.65	29.30	31.80	.....	.....	34.30	35.55	36.90	38.15	39.30	40.50	.....	.....	46.95	48.40	49.70	51.10	57.80	59.40	60.90	.....	.....
BOONE	Smooth	.....	14.20	.....	18.15	19.40	21.10	.....	.....	.....	28.25	28.95	30.15	30.95	.....	33.10	38.85	.....	41.35	43.30	43.95	.....	50.75	.....	53.80	.....	.....
	Ribbed Non-Skid	.....	15.60	.....	19.95	21.34	23.21	.....	.....	.....	31.10	31.85	33.15	34.05	.....	36.40	42.70	.....	45.50	47.60	48.45	.....	55.80	.....	59.30	.....	.....
	Special Non-Skid	.....	18.50	.....	23.50	25.30	27.45	.....	.....	.....	36.65	37.40	39.25	40.10	.....	42.55	50.00	.....	53.25	55.60	56.50	.....	65.35	.....	69.25	.....	.....
	Black Tubes	.....	3.40	.....	3.80	4.00	4.20	.....	.....	.....	5.40	5.55	5.75	5.90	.....	6.15	7.15	.....	7.30	7.40	7.60	.....	8.90	.....	9.25	.....	.....
	Red Tubes	.....	3.95	.....	4.50	4.70	4.95	.....	.....	.....	6.40	6.60	6.75	6.95	.....	7.20	8.40	.....	8.65	8.80	8.95	.....	10.50	.....	10.95	.....	.....
	Gray Tubes	.....	3.05	.....	3.45	3.65	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	5.55	6.50	.....	6.65	6.75	6.90	.....	8.10	.....	8 40	.....	.....
BOWERS	Plain	16.85	17.85	.....	24.00	25.50	26.95	28.80	.....	.....	33.50	35.45	37.25	38.20	39.05	40.95	.....	.....	47.50	49.40	51.26	.....	61.55	63.00	64.35	.....	90.85
	Grip Tread	18.70	19.65	.....	28.30	29.70	31.70	34.55	.....	.....	37.30	38.80	40.05	41.90	42.90	43.90	.....	.....	51.25	53.15	56.00	.....	67.20	69.65	71.85	.....	103.40
	Gray Tubes	3.30	3.80	.....	4.10	4.35	4.60	4.85	.....	.....	5.95	6.10	6.40	6.50	6.60	6.75	.....	.....	7.70	8.10	8.40	.....	9.50	9.70	10.00	.....	11.75

Digitized by Google

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
BRAENDER	Plain	qs13.95	qs14.30	qs18.10	q18.35	qs19.15	q21.30	q24.05	qs30.60	qs27.65	q28.20	q28.70	q30.15	q30.80	q32.65	q31.90	41.25	40.05	41.35	43.25	43.95	44.60	49.40	55.90	53.35	qs82.95	qs87.75
	Non-Skid	qs16.20	qs16.45	qs21.00	q21.30	qs22.20	q24.70	q27.90	qs34.80	qs32.05	q32.75	q33.35	q35.00	q35.75	q37.90	q37.00	47.75	46.40	47.95	50.15	51.00	51.75	57.30	64.80	61.90	qs96.20	qs101.75
	Gray Tubes	3.25	3.40	3.60	4.15	4.25	4.40	4.50	5.30	5.30	5.40	5.65	5.75	5.85	6.10	6.30	7.00	7.10	7.20	7.35	7.55	7.90	8.90	9.05	9.15	10.00	10.25
	Red Tubes	3.60	3.70	4.00	4.60	4.70	4.80	5.00	6.00	5.90	6.00	6.20	6.40	6.60	6.80	7.00	7.80	7.90	8.10	8.20	8.40	8.70	9.80	10.00	10.20	11.00	11.20
BRUNSWICK	Plain	13.30	qs14.35	.....	qs18.25	s19.60	21.35	c24.20	.....	.....	qs28.45	c29.05	c30.45	c31.20	c32.60	c33.10	c38.85	c40.05	c41.35	c43.30	c43.95	c45.80	c50.75	c51.55	c53.80	s83.10	c92.45
	Skid Not	15.60	qs16.80	.....	qs21.35	qs23.00	24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	c45.45	c46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	s103.90	c113.00
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	4.10	.....	.....	4.70	4.85	5.05	5.20	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
	Ribbed Tread	.....	qs15.95	.....	qs20.30	.....	qc2370	.....	.....	.....	qs31.65	qc32.30	qc33.90	qc34.65	.....	.....	qc43.20	qc44.55	qc46.00	qc48.05	qc48.80	.....	c56.45	.....	c59.80	.....	.....
BULL	Plain	qs13.50	qs14.00	.....	qs17.90	qs19.55	21.10	c23.80	.....	.....	qs27.85	q28.35	c30.00	c30.45	c31.65	cs37.90	.....	.....	cs41.75	c43.25	c43.95	cs53.75	c50.90	cs51.75	c53.65	.....	.....
	Non-Skid	qs15.15	qs15.70	.....	qs19.95	qs21.35	23.60	c26.95	.....	.....	qs31.50	q32.05	c33.90	c34.50	c36.30	cs43.40	.....	.....	cs46.75	c48.60	c49.15	cs60.00	c59.95	cs61.05	c63.10	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	*5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CAPITOL	Plain	qs13.90	qs13.65	.....	qs17.90	qs18.60	20.80	24.15	.....	c29.00	qs27.15	c27.95	29.15	c29.70	c33.70	c31.75	.....	.....	c39.75	c41.70	c42.35	c43.60	c47.70	cs53.15	c50.50	.....	.....
	Non-Skid	qs14.85	qs14.30	.....	qs18.35	qs19.70	21.75	25.80	.....	c30.20	qs28.50	c29.20	30.40	c31.25	c35.35	c33.10	.....	.....	c42.00	c43.55	c44.45	c46.05	c50.05	cs56.55	c52.95	.....	.....
	Redman Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Paragum Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
CARLISLE	Lightning Tread	.....	.....	.....	.....	.....	qc38.50	.....	.....	.....	.....	.....	qc48.75	c50.25	qc51.50	.....	.....	c55.00	qc56.50	c58.00	c59.25	c60.75	.....	c72.00	.....	c75.50	.....	cs91.50
CARSPRING	Plain	qs18.20	qs19.55	.....	s25.30	.....	29.15	36.30	.....	qs36.75	s35.20	36.00	37.70	38.50	44.55	41.00	.....	.....	51.40	53.70	54.45	56.65	62.50	s69.85	66.25	s102.85	s105.60
	"C" Tread	.....	qs20.45	.....	s26.50	.....	30.55	38.25	.....	qs38.50	s36.95	37.75	39.60	40.50	46.75	43.15	.....	.....	53.90	56.25	57.15	59.50	65.70	s73.70	69.55	s108.35	s111.00
	Suction Tread	.....	.....	.....	s29.75	.....	34.25	42.90	.....	qs42.70	s41.40	42.30	44.25	45.35	52.25	48.20	.....	.....	60.35	63.00	64.10	66.75	73.50	s82.50	77.80	s121.00	s124.30
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
CENTURY-PLAINFIELD	Plain	.....	qs19.50	.....	qs26.00	qs27.50	30.50	.....	.....	.....	s36.00	38.00	39.00	40.00	41.00	43.75	s47.00	qc47.25	49.00	50.35	54.15	55.00	61.75	64.50	65.50	s82.00	s87.00
	Non-Skid	.....	qs21.50	.....	27.50	29.00	32.00	.....	.....	.....	s38.00	40.00	41.00	42.00	43.00	45.00	s48.50	qc49.75	50.00	53.00	57.00	58.00	65.00	68.00	69.00	s86.00	s91.00
	Superbar	.....	16.30	.....	qs21.50	qs22.50	c21.85	.....	.....	.....	qs28.00	c28.60	c29.85	c30.65	c35.00	.....	.....	.....	c41.30	c43.10	43.90	.....	49.20	55.70	52.15	.....	.....
	Tubes	3.45	3.55	3.80	4.55	4.70	4.90	5.25	5.55	5.65	5.75	5.85	6.10	6.30	6.35	6.55	7.35	.....	7.90	8.05	8.35	8.60	9.45	9.65	10.00	.....	11.65
CHAMPION*	Non-Skid	14.45	14.10	.....	18.25	.....	21.40	23.80	.....	.....	28.00	28.60	29.85	30.65	.....	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Champion Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	4.55	.....	.....	4.75	4.85	5.00	5.15	5.80	6.00	.....	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tube	3.40	3.70	.....	4.05	4.30	4.40	4.60	.....	.....	5.50	5.65	5.95	6.10	6.25	6.50	.....	7.45	7.50	7.70	7.80	3.05	9.15	9.30	9.40	.....	.....
CHESTER	Plain	s13.50	s14.00	s18.25	s17.90	s19.55	21.10	23.80	s30.00	s31.90	s27.85	28.35	30.00	30.45	s31.65	s37.90	.....	.....	s41.75	43.25	43.95	s53.75	50.90	s51.75	53.65	.....	.....
	Non-Skid	s15.15	s15.70	s20.75	s19.95	s21.35	23.60	26.95	s34.20	s37.50	s31.50	32.05	33.90	34.50	s36.30	s43.40	.....	.....	s46.75	48.60	49.15	s60.00	59.95	s61.05	63.10	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CLEVELAND-STANDARD	Plain	19.80	20.50	.....	25.30	26.80	28.15	31.90	.....	34.10	34.50	35.65	37.40	38.50	39.60	40.70	.....	47.55	47.95	48.80	50.15	51.45	58.30	60.00	61.60	79.20	88.00
	Non-Skid	20.90	23.60	.....	29.90	31.90	34.75	36.30	.....	39.15	40.00	40.90	41.80	42.90	44.20	45.50	49.50	51.05	51.90	53.25	56.10	58.10	64.20	67.75	69.75	90.80	96.80
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.20	5.40	5.85	5.95	6.15	6.30	6.45	6.90	6.95	7.80	7.90	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
	Gray Tubes	3.40	3.50	3.75	4.30	4.40	4.50	5.00	5.20	5.35	5.50	5.65	5.80	6.00	6.20	6.40	7.15	7.25	7.40	7.50	7.70	8.00	8.90	9.10	9.20	10.55	10.75
COLUMBIA	Plain	13.80	14.20	17.30	18.45	19.45	21.50	27.90	.....	29.85	28.25	28.80	30.10	30.80	37.20	32.85	.....	.....	41.60	43.45	44.15	45.90	49.55	57.85	52.55	.....	.....
	Non-Skid	14.50	14.95	.....	19.35	20.35	22.45	29.25	.....	.....	29.65	30.20	31.65	32.40	39.00	34.50	.....	.....	43.65	45.65	46.35	48.25	52.05	60.75	55.20	.....	.....
	Gray Tubes	2.95	3.00	3.40	3.75	3.80	3.85	4.55	.....	4.95	4.75	4.85	5.00	5.15	5.75	5.50	.....	.....	6.25	6.45	6.65	6.85	7.80	8.60	8.10	.....	.....
	Red Tubes	3.30	3.35	3.80	4.20	4.25	4.30	5.05	.....	5.50	5.30	5.40	5.55	5.70	6.45	6.10	.....	.....	7.00	7.15	7.35	7.65	8.70	9.50	8.95	.....	.....
COMBINATION	Plain	qs12.75	qs13.70	.....	qs17.85	qs18.85	20.55	q23.25	.....	.....	qs27.35	27.85	29.20	29.85	31.30	31.80	39.20	.....	39.75	41.50	42.20	43.90	s46.40	47.15	49.10	.....	cs70.25
	Hold-on Non-Skid	qs15.05	qs16.05	.....	qs20.55	qs21.55	23.70	q26.85	.....	.....	qs31.35	32.00	33.65	34.26	35.90	36.25	44.15	.....	46.75	48.85	49.60	51.60	s57.25	58.10	60.60	.....	cs84.30
	Gray Tubes	3.00	3.15	.....	3.75	3.80	3.90	4.15	.....	.....	5.00	5.25	5.35	5.50	5.65	5.90	6.55	.....	6.75	6.95	7.15	7.25	8.15	8.40	8.55	.....	9.10
	Red Tubes	3.30	3.45	.....	4.15	4.20	4.35	4.65	.....	.....	5.50	5.85	5.95	6.10	6.20	6.50	7.20	.....	7.50	7.75	8.00	8.10	9.15	9.30	9.45	.....	10.05
COMPRESSION	Patented Tube	14.00	15.00	.....	16.00	17.00	18.00	19.00	.....	.....	20.00	21.00	22.00	23.00	24.00	25.00	.....	26.00	27.00	28.00	29.00	30.00	32.00	33.00	34.00	.....	.....
CONVERSE	Rough Tread	.....	.....	.....	qs28.10	qs32.90	36.10	.....	.....	.....	43.05	44.40	45.95	47.60	48.80	50.15	qc52.45	qc54.05	55.65	58.60	63.00	64.80	72.00	74.85	77.35	.....	.....
	Smooth Tread	.....	qs21.20	.....	qs27.30	qs30.10	31.75	.....	.....	.....	36.75	38.10	39.50	40.90	42.10	43.45	qc47.25	qc48.70	50.25	51.85	53.25	54.70	61.65	63.65	65.25	.....	.....
	Gray Tubes	.....	3.30	3.90	4.10	4.20	4.35	5.15	.....	.....	5.35	5.50	5.55	5.80	6.55	6.75	6.85	6.95	7.10	7.25	7.50	8.50	8.80	9.70	9.10	10.40	10.60
	Red Tubes	.....	3.75	4.25	4.65	4.70	4.85	5.70	.....	.....	5.85	6.15	6.20	6.45	7.25	7.45	7.65	7.75	7.90	8.05	8.30	9.40	9.75	10.70	11.20	11.50	11.90
CORTLAND	C. C. Plain	.....	s14.10	.....	s18.35	.....	s21.45	s23.75	.....	.....	s28.15	28.70	30.05	30.70	s31.50	s32.30	s38.95	s40.05	41.30	43.25	43.95	s44.75	49.35	s50.85	52.25	s68.75	s70.85
	C. C. Non-Skid	.....	s14.85	.....	s19.20	.....	22.50	s24.90	.....	.....	s29.45	30.10	31.40	32.25	s32.90	s33.25	s40.95	s42.05	43.45	45.35	46.20	s45.80	51.85	s52.90	54.90	s71.50	s74.50
	Yankee Plain	.....	s19.65	.....	s24.10	.....	27.70	s29.90	.....	.....	s35.65	37.60	38.50	39.50	s40.50	s41.50	s46.50	s47.55	48.50	51.10	54.90	s57.42	65.15	s66.85	68.85	s81.45	s83.25
	Yankee Non-Skid	.....	s21.80	.....	s26.75	.....	30.75	s33.15	.....	.....	s39.60	41.75	42.80	43.85	s44.95	s46.00	s51.70	s52.80	53.90	56.75	61.00	s63.80	72.35	s74.25	76.50	s90.50	s92.50
CUPPLES	Rough Tread	.....	qs18.00	.....	qs25.00	.....	qc30.00	.....	.....	.....	qs37.00	qs39.00	qc40.00	c41.00	.....	.....	.....	qc48.00	qc49.00	qc52.00	c56.00	.....	c63.00	.....	cs67.00	.....	.....
	Red Tubes	.....	3.95	.....	4.75	.....	4.95	.....	.....	.....	6.40	6.60	6.75	6.95	.....	.....	.....	8.40	8.65	8.80	8.95	.....	10.50	.....	10.95	.....	.....
	Rhinos Inner Tubes	.....	7.90	.....	9.50	.....	9.90	.....	.....	.....	12.80	13.20	13.50	13.90	.....	.....	.....	16.80	17.30	17.60	17.90	.....	21.00	.....	21.90	.....	.....
CURTIS	Plain	18.20	18.50	.....	24.70	.....	27.60	.....	.....	.....	32.25	33.45	34.65	35.85	.....	38.10	.....	.....	44.15	45.50	46.75	48.00	54.30	55.80	57.30	.....	.....
	Suction	20.70	20.90	.....	27.25	.....	33.00	.....	.....	.....	39.75	41.15	42.35	43.90	.....	46.20	.....	.....	51.30	52.90	57.40	59.10	65.25	66.60	71.30	.....	.....
	Gray Tubes	3.35	3.45	.....	4.00	.....	4.15	.....	.....	.....	5.40	5.65	5.80	5.90	.....	6.15	.....	.....	7.35	7.55	7.75	8.00	9.00	9.30	9.40	.....	.....
	Red Tubes	3.65	3.85	.....	4.45	.....	4.55	.....	.....	.....	6.05	6.20	6.45	6.55	.....	6.80	.....	.....	8.15	8.30	8.65	8.80	9.90	10.20	10.80	.....	.....
DAYTON	Plain	qs21.65	qs20.70	.....	qs25.20	qs27.95	29.65	.....	.....	s44.70	qs34.75	qc36.05	37.40	38.70	s39.85	41.10	s55.95	.....	47.70	49.15	50.50	51.85	s58.70	s60.40	61.90	s80.80	s92.85
	Non-Skid	qs26.30	qs24.75	.....	qs31.05	qs32.05	35.45	.....	.....	.....	qs42.90	qc44.30	45.65	47.25	s48.80	51.55	.....	.....	55.40	58.75	63.80	65.15	s72.60	s75.40	77.20	s96.10	s111.80
	Red Tubes	3.65	3.75	.....	4.80	4.95	5.15	.....	.....	5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80	.....	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
DEFIANCE	Plain	qs13.00	qs13.15	.....	17.45	s17.70	21.30	22.55	.....	.....	s26.95	27.70	28.55	29.15	29.95	31.10	.....	.....	39.05	41.50	42.00	43.75	.....	cs47.85	c49.65	.....	.....
	Tiger Tread	qs14.35	qs14.60	.....	19.20	s19.80	22.85	25.05	.....	.....	s29.05	31.08	31.55	32.85	33.28	33.70	.....	.....	42.25	45.70	47.25	48.45	.....	cs51.15	c54.45	.....	.....
	Gray Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
	Red Tubes	3.15	3.45	.....	3.90	3.95	4.00	4.50	.....	4.95	5.00	5.40	5.55	5.70	5.85	6.10	.....	.....	7.10	7.25	7.40	7.65	.....	8.20	8.30	.....	.....
	Double Wall Tubes	4.13	4.20	.....	4.97	5.11	5.32	5.88	.....	.....	6.65	6.86	7.14	7.35	7.77	7.70	.....	.....	9.03	9.21	9.59	9.85	.....	11.55	11.48	.....	.....
DELION	Plain	16.10	18.00	19.40	22.80	24.15	26.45	28.00	33.15	35.55	31.15	33.15	35.45	37.45	38.35	40.35	46.90	48.00	50.75	51.37	51.90	53.45	59.90	61.20	62.85	80.95	83.80
	Non-Skid	18.00	19.35	21.00	26.45	27.60	29.00	29.75	39.25	40.00	35.20	36.85	39.65	40.95	42.90	44.05	52.25	53.35	54.30	55.55	57.25	59.60	65.70	67.60	70.25	89.35	92.65
	Red Tubes	3.50	3.50	3.90	4.15	4.45	4.55	4.85	5.10	6.10	5.60	5.80	6.10	6.25	6.40	6.60	7.40	7.50	7.60	7.75	8.00	8.20	9.00	9.25	9.45	10.25	10.50
DIAMOND	Smooth	14.50	14.10	18.90	18.35	19.30	21.45	25.05	26.65	29.85	28.15	28.70	30.05	30.70	35.05	36.00	38.95	40.05	41.30	43.25	43.95	50.30	49.35	55.90	52.25	78.45	70.85
	Squeegee	15.20	14.85	19.80	19.20	20.30	22.50	26.25	27.90	31.25	29.45	30.10	31.40	32.25	36.85	37.80	40.95	42.05	43.45	45.35	46.20	52.85	51.85	58.65	54.90	82.30	74.40
	Gray Tubes	3.25	3.20	3.60	3.95	4.00	4.05	4.80	5.05	5.20	5.00	5.10	5.25	5.40	6.10	6.30	6.25	6.45	6.60	6.80	7.00	8.00	8.20	9.05	8.55	9.75	9.95
	Red Tubes	3.55	3.50	4.00	4.40	4.45	4.50	5.30	5.65	5.80	5.60	5.70	5.85	6.00	6.80	6.95	6.95	7.15	7.35	7.50	7.75	8.80	9.15	10.00	9.40	10.85	11.05
DOUBLE FABRIC	Xtra-Ply	16.35	qs17.45	.....	qs22.65	qs24.40	c26.70	.....	.....	.....	qs32.90	qc35.50	c37.30	c38.10	.....	c40.55	.....	.....	c48.15	c49.90	c51.50	c53.95	c63.20	.....	c66.85	.....	.....
	Duo-Cord	.....	qs21.45	.....	qs27.95	.....	c32.10	.....	.....	.....	.....	qc43.35	c44.70	c46.05	.....	.....	c54.35	c56.05	c57.85	59.50	.....	.....	c71.75	.....	c75.80	.....	.....
	Brazil Gray Tubes	3.15	3.35	.....	3.80	3.85	4.05	4.15	4.35	.....	5.15	5.35	5.45	5.55	5.80	5.90	6.85	6.95	7.05	7.15	7.25	7.35	8.55	8.65	8.85	9.35	.....
DREADNAUGHT	Vacuum Red	.....	qs18.85	.....	qs23.70	qs24.90	c28.50	.....	.....	.....	qs34.70	c35.30	c37.10	c37.90	.....	cs39.95	.....	qc48.55	c49.20	c51.45	c52.25	cs54.65	c60.05	cs61.25	c63.50	.....	.....
	Ribbed Tread	.....	qs16.75	.....	qs21.70	qs22.95	c25.15	.....	.....	.....	qs30.20	c31.35	c32.55	c32.95	.....	cs36.20	.....	qc42.65	c43.85	c45.80	c46.55	cs48.95	c51.25	cs52.00	c54.30	.....	.....
	Super-Dreadnaught Red Tubes	.....	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	10.45	10.80
DRY CLIMATE	Plain	.....	14.35	.....	18.25	19.60	21.35	24.20	.....	.....	28.45	29.05	30.45	31.20	32.60	33.10	38.85	40.05	41.35	43.30	43.95	45.80	50.75	51.55	53.80	.....	.....
	Non-Skid	.....	16.80	.....	21.35	23.00	24.95	28.35	.....	.....	33.30	34.00	35.70	36.45	38.10	38.70	45.45	46.90	48.40	50.60	51.35	53.65	59.40	60.30	62.95	.....	.....
	Red Tubes	.....	3.95	4.10	4.50	4.60	4.95	5.35	5.60	5.75	6.40	6.60	6.75	6.95	7.05	7.20	8.40	8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95	.....	.....
	Gray Tubes	.....	3.05	3.15	3.45	3.65	3.80	4.45	4.50	4.55	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	.....	.....
DUNLOP	Cross Groove	.....	22.95	.....	28.55	30.20	32.15	34.60	36.50	.....	38.55	42.10	44.30	46.40	48.60	51.30	52.35	53.35	54.35	57.70	58.30	60.40	64.35	67.05	69.70	78.50	.....
	Traction Non-Skid	.....	25.00	.....	33.80	35.55	36.75	39.40	42.50	.....	46.25	50.10	53.05	55.50	57.70	59.55	60.15	62.25	64.35	66.45	68.65	70.75	79.50	83.00	84.40	92.35	97.90
	Tubes	4.80	4.85	.....	6.15	6.25	6.40	7.20	7.50	.....	7.70	8.00	8.25	8.55	9.05	9.05	10.45	10.45	10.70	10.95	11.20	11.50	12.90	13.35	13.35	14.75	15.15
DUPLEX	Plain	13.65	14.55	15.60	18.95	19.55	19.55	21.95	.....	29.70	30.90	30.90	31.95	34.20	35.25	36.35	42.60	44.05	45.45	46.95	48.40	49.75	56.90	58.50	60.15	70.35	72.15
	Non-Skid	19.45	21.00	22.75	27.85	28.85	29.40	30.35	.....	38.40	39.55	41.25	42.70	44.05	46.70	46.15	52.95	53.05	54.70	56.45	58.05	59.75	67.20	68.50	69.60	89.35	92.50
	Red Tubes	3.60	3.85	4.10	5.15	5.30	5.45	5.75	.....	7.25	7.60	7.75	8.05	8.20	8.50	8.70	9.65	9.80	10.05	10.35	10.60	11.00	12.25	12.50	12.95	14.55	14.90
DURAL	Red Tubes	3.65	3.75	4.20	4.55	4.70	4.85	5.10	5.45	6.15	6.05	6.20	6.50	6.75	6.95	7.10	8.40	7.85	8.05	8.25	8.45	8.65	9.50	9.75	9.90	.....	.....
	Gray Tubes	2.95	3.00	3.30	3.40	3.55	3.70	3.90	4.30	4.85	4.55	4.80	5.00	5.15	5.30	5.40	6.60	6.30	6.40	6.60	6.85	7.00	7.60	7.80	8.05	.....	.....
EHMAN	Plain	13.80	13.40	.....	17.45	18.35	20.40	23.80	.....	.....	26.75	27.25	28.55	29.15	33.30	34.20	.....	38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65	.....	.....
	Track Tread	14.45	14.10	.....	18.25	19.30	21.40	24.95	.....	.....	28.00	28.60	29.85	30.65	35.00	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Non-Skid Worm Drive Tread	14.45	14.10	.....	18.25	19.30	21.40	24.95	.....	.....	28.00	28.60	29.85	30.65	35.00	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Non-Skid Wrapped Tread	15.15	14.80	.....	19.15	20.25	22.47	26.20	.....	.....	29.40	30.05	31.35	32.20	36.75	37.70	.....	41.95	43.35	45.25	46.10	52.70	51.70	58.50	54.75	.....	.....
	Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	4.55	.....	.....	4.75	4.85	5.00	5.15	5.80	6.00	.....	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tubes	3.40	3.35	.....	4.20	4.25	4.30	5.05	.....	.....	5.30	5.40	5.55	5.70	6.45	6.60	.....	6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95	.....	.....
EMPIRE	Smooth Gray	qs15.20	qs16.10	.....	20.40	qs21.25	23.55	26.25	27.55	.....	21.45	32.05	33.45	34.00	35.45	35.70	.....	46.20	46.55	48.50	49.05	50.80	57.90	58.50	60.80	.....	.....
	Non-Skid Gray	qs16.00	qs16.95	.....	21.45	qs22.40	24.80	27.60	29.00	.....	33.10	33.70	35.20	35.80	37.30	37.55	48.75	48.60	49.00	51.05	51.65	53.45	60.95	61.60	64.00	.....	.....
	Gray Tubes	3.00	3.15	3.30	3.60	3.70	3.75	3.90	4.10	4.80	4.90	5.05	5.15	5.30	5.45	5.60	6.45	6.60	6.65	6.75	6.85	7.05	8.10	8.20	8.40	9.00	9.15
	Smooth Red	qs17.95	qs19.05	.....	24.90	qs26.10	28.55	32.45	34.10	.....	38.00	38.70	40.70	41.65	43.55	44.20	.....	56.50	55.55	57.95	60.10	61.30	64.75	65.70	68.60	.....	.....
	Non-Skid Red	qs18.75	qs20.00	.....	26.10	qs27.50	30.10	34.10	35.95	.....	40.00	40.80	42.85	43.70	45.85	46.60	58.20	59.45	58.45	61.00	63.35	64.55	68.20	69.20	72.20	.....	.....
	Red Tubes	3.45	3.65	3.85	4.05	4.20	4.20	4.65	5.15	5.35	5.55	5.65	5.90	6.05	6.20	6.40	7.65	7.80	7.90	8.15	8.35	8.50	9.50	10.00	10.10	10.95	11.10
ENDURANCE	Ball Bearing Non-Skid	.....	qs18.50	.....	qs23.75	.....	qc27.50	.....	.....	.....	s36.25	qc37.00	c38.75	c40.00	.....	.....	.....	qc51.50	qc53.00	qc55.50	c56.25	.....	c63.50	cs65.25	c67.25	.....	.....
	Gray Tubes	3.45	3.60	3.85	4.05	4.20	4.25	4.60	4.80	5.50	5.50	5.60	5.70	5.95	6.15	6.15	7.30	7.30	7.35	7.55	7.70	7.85	9.10	9.30	9.30	10.50	10.65
	Red Tubes	3.85	3.90	4.35	4.90	5.00	5.10	5.75	6.00	6.15	6.15	6.40	6.60	6.80	7.25	7.25	8.35	8.35	8.55	8.75	8.95	9.20	10.30	10.65	10.65	11.75	12.10
FALLS	Ribbed	.....	23.60	.....	30.70	.....	33.00	.....	.....	.....	42.60	45.70	47.25	49.00	.....	.....	.....	.....	59.10	60.20	62.50	.....	.....	.....	.....	.....	.....
	"Neverslip" Non-Skid	.....	25.30	.....	32.80	34.40	35.30	.....	.....	.....	45.40	48.90	50.25	51.85	.....	54.85	58.30	60.50	62.50	63.80	44.70	68.00	79.65	81.30	82.90	98.50	99.50
	Pure Gum Green Tubes	4.80	5.00	.....	6.80	7.05	7.20	.....	.....	.....	8.95	9.20	9.45	9.70	9.90	10.20	11.25	11.50	11.85	12.15	12.45	12.75	13.95	14.30	14.55	16.40	17.10
FEDERAL	Plain	qs14.30	qs13.90	.....	qs18.05	qs19.10	s21.10	qc24.70	.....	.....	qs27.65	qc28.20	c29.60	c30.20	qc34.45	c32.20	.....	qc39.40	c40.65	c42.50	c43.20	c44.95	c48.50	.....	c51.45	.....	.....
	Traffik Tread	qs14.95	qs14.60	.....	qs18.90	qs20.00	s22.15	qc25.85	.....	.....	qs29.00	qc29.65	c30.90	c31.70	qc36.20	c33.80	.....	qc41.30	qc42.80	qc44.65	qc45.40	qc47.20	qc50.95	.....	c53.95	.....	.....
	Rugged Tread	qs16.85	qs16.40	.....	qs21.30	.....	s24.90	qc29.06	.....	.....	qs32.60	qc33.35	c34.75	c35.70	qc40.70	c38.00	.....	qc46.50	c48.15	c50.20	c51.05	c53.15	c57.30	.....	c60.70	.....	.....
	Gray Tubes	3.10	3.05	.....	3.75	3.80	3.95	4.70	.....	.....	4.85	5.05	5.05	5.30	5.65	5.65	.....	6.35	6.55	6.55	6.80	7.05	8.00	8.30	8.30	.....	.....
	Red Skin Tubes	3.70	3.45	.....	4.35	4.40	4.55	5.45	.....	.....	5.55	5.80	5.80	6.10	6.55	6.55	.....	7.25	7.50	7.50	7.85	8.10	9.20	9.50	9.50	.....	.....
FIRESTONE	Round Tread	13.50	14.00	18.25	17.90	19.55	21.10	23.80	30.00	31.90	27.85	28.35	30.00	30.45	31.65	37.90	39.80	40.85	41.75	43.25	43.95	53.75	50.90	51.75	53.65	83.20	89.25
	Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	34.20	37.50	31.50	32.05	33.90	34.50	36.30	43.40	44.55	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	95.30	101.35
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
	Triple Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	c47.85	c49.10	c50.45	.....	.....	c53.90	c55.30	c56.75	c58.15	c59.50	.....	c70.60	.....	c73.90	.....	.....
	F F Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	c51.40	52.75	c54.20	.....	.....	c57.85	c59.40	c60.95	c62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
	Super Size Red Tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.15	7.30	7.45	.....	.....	8.30	8.45	8.65	8.85	9.00	.....	10.25	.....	10.80	.....	.....
FISK	Plain	qs13.80	qs13.40	qs17.90	17.45	qs18.35	20.40	23.80	s26.10	s32.30	s26.75	27.20	28.55	29.15	33.30	37.60	.....	qc38.05	39.30	41.10	41.75	c50.15	c46.90	53.10	49.65	cs74.50	.....
	Gray and Black Non-Skid	qs14.50	qs14.10	.....	18.30	qs19.30	21.40	25.00	.....	s33.95	s28.00	28.60	29.85	30.65	35.00	39.45	qc38.50	qc39.95	41.30	43.10	43.90	c52.65	c49.20	55.70	52.10	cs78.20	cs70.65
	Red Non-Skid	.....	qs18.20	.....	22.90	qs24.15	26.75	.....	.....	.....	s33.65	34.40	35.85	36.75	.....	47.35	qc46.15	qc47.90	49.60	51.80	52.60	c63.30	c59.10	66.90	62.50	.....	cs84.80
	Ribbed Cord	.....	.....	.....	.....	.....	qc37.60	.....	.....	.....	.....	qc47.85	qc49.10	qc50.45	.....	.....	qc53.90	qc55.30	qc56.75	qc58.15	qc59.50	.....	qc70.60	.....	qc73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	.....	.....	qc39.50	.....	.....	.....	.....	qc50.25	qc51.60	qc53.00	.....	.....	qc56.65	qc58.10	qc59.60	qc61.05	qc62.50	.....	qc74.15	.....	qc77.60	.....	.....
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.75	4.75	4.95	4.95	5.15	5.50	5.50	6.15	6.15	6.40	6.40	6.65	6.90	7.80	8.10	8.10	9.25	9.45
	Red Tubes	.....	3.45	.....	4.30	.....	4.40	5.20	.....	5.45	5.45	5.70	5.70	5.95	6.35	6.35	7.10	7.10	7.30	7.30	7.65	7.90	8.95	9.30	9.30	.....	10.90

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
G & J	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Non-Skid	15.85	14.50	.....	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Stalwart Tread	.....	16.40	.....	21.35	22.45	24.55	.....	.....	.....	33.50	34.10	35.90	36.65	.....	38.95	.....	47.15	48.75	50.95	51.70	53.85	57.85	.....	61.25	.....	.....
	Plain Cord	.....	.....	.....	.....	.....	34.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	.....
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	.....
GENERAL	Plain	.....	16.90	.....	21.05	.....	26.20	29.45	.....	.....	34.20	34.70	36.80	37.45	38.85	39.40	.....	.....	46.10	48.30	50.25	53.45	59.40	61.00	61.30	.....	.....
	Non-Skid	18.35	19.55	.....	24.75	26.70	29.45	33.65	.....	.....	38.65	39.40	41.65	42.40	44.60	45.30	.....	52.20	53.65	56.45	57.25	59.70	66.70	69.45	70.40	.....	.....
	Gray Tubes	3.05	3.10	3.55	3.70	3.90	4.05	4.30	.....	.....	5.00	5.25	5.45	5.60	5.80	5.90	.....	6.90	7.00	7.20	7.55	7.70	8.30	8.50	8.75	.....	10.20
	Red Tubes	3.85	4.00	4.60	4.85	4.90	5.10	5.40	.....	.....	5.40	6.60	6.90	7.00	7.35	7.50	.....	8.35	8.50	8.70	9.00	9.20	10.25	10.30	10.55	.....	12.55
	Rib Tread	.....	.....	.....	.....	.....	qc37.60	.....	.....	.....	.....	qc47.85	qc49.10	qc50.45	.....	.....	.....	.....	qc55.30	qc56.75	qc58.15	c59.50	.....	c70.60	.....	c73.90	.....	.....
	Non-Skid	.....	.....	.....	.....	.....	qc40.45	.....	.....	.....	.....	qc51.40	qc52.75	qc54.20	.....	.....	.....	qc59.40	qc60.95	qc62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
GILLETTE SAFETY	Plain	14.90	13.85	.....	17.95	.....	21.10	.....	.....	.....	28.20	28.70	30.05	30.50	.....	32.25	.....	.....	41.40	43.30	43.95	.....	50.70	56.25	52.35	.....	.....
	Ribbed	.....	15.60	.....	21.35	.....	24.10	.....	.....	.....	31.50	32.05	33.90	34.50	.....	36.90	.....	.....	46.80	48.65	49.20	.....	57.85	57.85	61.05	.....	.....
	5,000-Mile Non-Skid	18.35	19.50	.....	24.75	.....	29.45	.....	.....	.....	38.65	39.40	41.65	42.40	.....	45.30	.....	.....	56.20	59.15	60.00	.....	71.25	72.75	73.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	.....	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	.....	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
	Gray Tubes	2.75	3.00	.....	3.75	.....	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	.....	8.00	8.15	8.30	.....	.....
	Hard Service Red Tubes	.....	3.70	.....	4.65	.....	4.90	5.35	.....	.....	6.00	6.05	6.15	6.30	6.55	6.55	.....	.....	8.10	8.25	8.40	.....	9.65	9.90	10.00	.....	.....
GLOBE	Plain	19.90	s19.55	24.65	25.45	s28.15	28.95	31.50	.....	36.40	34.50	34.90	36.60	38.35	38.75	39.60	43.75	qc45.60	47.25	48.70	50.10	51.50	57.80	59.70	61.10	79.50	81.10
	Good Grip Non-Skid	22.35	s22.25	27.35	28.15	s30.75	32.45	36.25	.....	40.10	38.10	38.75	40.45	41.20	42.90	43.25	47.50	qc50.80	53.05	56.15	59.55	61.60	66.50	67.85	72.60	90.65	97.25
	Red Tubes	3.50	3.65	3.95	4.25	4.45	4.50	4.75	.....	5.85	5.95	6.15	6.35	6.50	6.60	6.85	7.75	7.85	8.00	8.10	8.35	8.50	9.50	9.80	9.90	11.00	11.20
	Gray Tubes	3.05	3.25	3.50	3.85	3.95	4.00	4.20	.....	5.15	5.30	5.40	5.65	5.75	5.90	6.05	6.90	6.95	7.10	7.20	7.40	7.50	8.50	8.65	8.80	9.80	10.00
GOODRICH	Plain	13.80	13.40	17.95	17.45	18.35	20.40	23.80	25.30	28.35	26.75	27.25	28.55	29.15	33.30	34.20	37.00	38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65	74.55	67.30
	Safety Tread	14.45	14.10	18.80	18.25	19.30	21.40	24.95	26.50	29.70	28.00	28.60	29.85	30.65	35.00	35.90	38.90	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	78.20	70.70
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.75	4.85	5.00	5.15	5.80	6.00	5.95	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	9.25	9.45
	Brown Tubes	3.40	3.35	3.80	4.20	4.25	4.30	5.05	5.35	5.50	5.30	5.40	5.55	5.70	6.45	6.60	6.60	6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95	10.30	10.50
	S. S. Silvertown Ribbed Tread	.....	.....	.....	.....	.....	37.60	.....	.....	.....	.....	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	89.65
	Q. D. Silvertown Ribbed Tread	.....	.....	.....	.....	.....	39.35	.....	.....	.....	.....	50.05	51.35	52.75	.....	55.35	56.40	57.80	59.35	60.80	62.25	63.70	73.80	75.50	77.30	.....	93.70
	S. S. Silvertown Safety Tread	.....	.....	.....	.....	.....	39.50	.....	.....	.....	.....	50.25	51.60	53.00	.....	.....	56.65	58.10	59.60	61.05	62.50	.....	74.15	.....	77.60	.....	94.15
	Q. D. Silvertown Safety Tread	.....	.....	.....	.....	.....	41.30	.....	.....	.....	.....	52.60	53.95	55.40	.....	.....	59.25	60.70	62.30	.....	65.35	.....	77.50	.....	81.15	.....	98.40
GOODYEAR	Plain	.....	qs14.35	.....	q18.25	qs19.60	21.35	qc24.20	.....	.....	q28.45	c29.05	30.45	31.20	qc32.60	c33.10	qc38.85	qc40.05	41.35	c43.30	43.95	c45.80	c50.75	c51.55	c53.80	.....	.....
	All-Weather	.....	qs16.80	.....	q21.35	qs23.00	24.95	qc28.35	.....	.....	q33.30	c34.00	35.70	36.45	qc38.10	c38.70	qc45.45	qc46.90	48.40	c50.60	51.35	c53.65	c59.40	c60.30	c62.95	.....	.....
	Ribbed Tread Cord	.....	.....	.....	qc35.20	.....	qc37.60	qs40.05	.....	.....	qc46.20	qc47.85	qc49.10	qc50.45	.....	.....	qc53.90	qc55.30	c56.75	qc58.15	c59.50	.....	c70.60	.....	c73.90	.....	c89.65
	All-Weather Cord	.....	.....	.....	qc37.85	.....	qc40.45	qc43.05	.....	.....	qc49.65	qc51.40	qc52.75	qc54.20	.....	.....	qc57.90	qc59.40	c60.95	qc62.40	c63.95	.....	c75.80	.....	c79.45	.....	e96.30
	Unusual Sizes—Plain Tread	.....	.....	.....	.....	.....	.....	cs29.30	.....	.....	.....	qs34.90	.....	.....	cs39.15	qs39.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs64.55	qc83.10	.....
	All-Weather	.....	.....	.....	.....	.....	.....	cs34.30	.....	.....	.....	qs40.85	.....	.....	cs45.80	qs46.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs75.50	qc97.25	.....
	Regular Tubes	.....	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	.....	.....
	Heavy Tourist Tubes	.....	3.95	.....	4.50	.....	4.95	5.35	.....	.....	6.40	6.60	6.75	6.95	.....	7.20	8.40	.....	8.65	8.80	8.95	9.25	10.50	10.75	10.95	11.70	11.90
GORDON	Lotraction Tread	.....	qs15.80	.....	qs20.20	.....	qc23.75	.....	.....	.....	qs31.30	qc31.95	qc33.50	qc34.30	.....	.....	.....	.....	.....	qc47.65	qc48.35	.....	qs56.85	.....	qs58.85	.....	.....
	Triangle Tread	qs15.60	qs16.75	.....	qs21.35	qs23.00	25.30	cs29.70	.....	.....	qs33.50	34.10	35.70	36.45	c88.10	39.75	.....	qc52.45	c48.40	49.95	50.50	c54.75	c57.70	cs58.50	61.10	.....	.....
	Gray Tubes	3.40	3.55	.....	4.05	4.30	4.45	4.80	.....	.....	5.75	5.95	6.10	6.25	6.35	6.50	.....	7.70	7.80	7.90	8.05	8.35	9.45	9.70	9.85	.....	.....
	Red Tubes	3.85	3.95	.....	4.50	4.75	4.95	5.35	.....	.....	6.40	6.60	6.75	6.95	7.05	7.20	.....	8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95	.....	.....
GRYPHON	Non-Skid	15.60	15.00	.....	19.25	20.70	22.85	27.10	.....	31.70	29.95	30.65	31.90	32.80	37.10	34.75	.....	42.45	44.10	45.75	46.65	48.35	52.55	59.40	55.60	.....	.....
	Red Tubes	3.70	3.55	4.00	4.40	4.45	4.55	4.90	5.20	5.60	5.80	5.90	6.15	6.40	6.55	6.65	7.45	7.50	7.65	7.75	7.90	8.15	9.35	9.65	9.45	.....	.....
	Gray Tubes	3.25	3.20	3.70	3.75	4.05	4.15	4.80	4.95	5.20	5.00	5.10	5.25	5.45	6.00	5.70	6.85	6.60	6.75	6.90	7.05	7.35	8.40	8.95	8.60	.....	.....
HAMILTON	Cable Tread	14.80	15.85	.....	20.50	21.60	qc23.55	qc26.60	28.20	29.80	31.50	qc32.10	qc33.70	qc34.35	qc36.10	qc36.70	38.30	43.80	qc45.75	qc47.80	qc48.50	qc50.55	qc58.15	qc59.00	qc61.30	.....	77.90
	Non-Skid	16.20	17.25	.....	22.00	23.00	qc24.95	qc28.00	29.65	31.55	33.25	qc33.80	qc35.45	qc36.10	qc37.85	qc38.45	.....	46.35	qc48.30	qc50.30	qc51.00	qc53.05	qc61.65	qc62.50	qc64.80	.....	82.20
	Invincible and Perfection Pink Tubes	3.55	3.65	3.80	4.35	4.40	4.55	4.80	5.00	5.60	5.70	5.80	5.90	6.15	6.30	6.45	7.10	7.20	7.30	7.45	7.70	7.85	8.65	8.85	9.00	9.75	10.80
	Gray Tubes	2.90	3.00	3.20	3.50	3.60	3.75	3.95	4.35	4.70	4.75	4.85	5.05	5.20	5.35	5.45	6.30	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	8.95	9.45
HANES	Plain	13.45	14.00	.....	17.85	19.50	21.10	23.80	.....	.....	27.80	28.30	29.95	30.40	31.60	32.15	.....	.....	41.70	43.20	43.90	45.70	50.85	51.75	53.65	.....	.....
	Non-Skid	15.10	15.65	.....	19.95	21.35	23.60	26.95	.....	.....	31.50	32.05	33.90	34.50	36.30	36.90	.....	.....	46.75	48.60	49.20	51.05	59.95	61.05	63.10	.....	.....
	Tubes	3.10	3.20	.....	3.80	3.95	4.10	4.30	.....	.....	5.05	5.30	5.55	5.70	5.85	6.00	.....	.....	7.15	7.35	7.60	7.80	8.45	8.65	8.95	.....	.....
HARDMAN SENIOR	Plain	.....	s20.75	s24.00	s25.20	s27.90	29.70	34.00	.....	.....	s36.00	37.10	39.10	40.40	41.85	43.90	s47.75	49.40	51.35	53.25	55.25	57.75	63.10	s65.25	67.00	s86.35	s89.50
	Non-Skid	25.00	s23.50	s27.00	s28.00	s31.00	33.10	37.25	.....	.....	s40.00	41.15	43.50	44.90	47.15	48.85	s54.15	56.05	58.20	60.35	62.50	64.25	71.70	s74.80	76.00	s95.50	s99.50
	Red Tubes	.....	3.95	4.35	5.00	5.10	5.25	5.85	.....	.....	6.30	6.50	6.75	6.95	7.30	7.40	8.40	8.50	8.70	8.90	9.20	9.35	10.45	10.75	10.90	12.50	12.75
HARDMAN JUNIOR	Plain	.....	s15.50	s19.50	s20.35	s21.50	22.85	26.00	.....	.....	s27.75	29.50	31.40	32.45	34.90	36.50	s42.35	43.45	45.10	46.20	48.25	50.00	54.20	s56.00	58.00	.....	.....
	Non-Skid	18.00	s16.75	s22.00	s21.50	s22.50	24.15	29.40	.....	.....	s29.00	30.25	32.45	34.00	36.00	38.00	s44.00	45.00	46.75	47.85	49.50	51.60	56.00	s58.00	60.00	.....	.....
	Gray Tubes	.....	3.75	.....	4.30	4.40	4.50	4.85	.....	.....	5.75	5.85	6.00	6.20	6.40	6.45	7.55	7.60	7.70	7.85	8.05	8.20	9.35	9.50	9.60	.....	.....
HARTFORD	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Hartford Anti-Skid	15.25	14.50	.....	18.80	10.80	21.85	28.45	.....	.....	28.85	29.35	20.80	31.50	28.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	.....
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	.....
HAWKEYE	Plain	13.42	14.47	.....	17.88	.....	21.12	.....	.....	.....	27.83	29.15	30.80	31.30	.....	33.28	.....	40.70	41.53	43.34	44.06	45.93	50.38	51.32	53.13	.....	.....
	Non-Skid	14.80	15.90	.....	19.97	.....	23.60	.....	.....	.....	31.52	32.12	33.83	34.54	.....	36.69	.....	44.39	45.49	47.41	47.91	49.72	55.88	56.82	58.53	.....	.....
	Ribbed Tread Non-Skid	19.47	20.96	.....	26.57	.....	30.75	.....	.....	.....	40.70	41.53	43.78	44.61	.....	46.59	.....	51.81	54.07	57.09	61.77	62.76	68.81	71.83	73.48	.....	.....
	Red Tubes	3.25	3.35	.....	4.00	4.25	4.05	4.35	.....	.....	5.40	5.55	5.75	5.90	6.00	6.10	.....	7.15	7.20	7.30	7.50	7.70	8.60	8.80	8.90	.....	.....
	Gray Tubes	2.80	2.90	.....	3.45	3.60	3.65	3.70	.....	.....	4.70	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.45	6.55	6.65	6.75	7.70	7.80	8.00	.....	.....

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
HENDRIE	Plain	16.10	16.65	18.00	19.90	21.30	22.30	24.95	.....	29.00	29.55	30.65	31.35	32.05	33.15	33.40	40.70	41.45	42.15	43.80	44.35	45.85	52.35	53.50	56.75	69.60	72.20
	Non-Skid	19.20	20.20	21.30	24.15	24.70	26.75	29.25	.....	33.05	34.20	35.10	36.25	37.05	38.05	38.65	46.55	47.25	48.05	51.60	55.30	54.20	61.90	62.45	63.75	78.40	85.25
	California Non-Skid	22.05	23.15	24.40	27.80	28.35	31.90	33.60	.....	37.95	39.35	40.30	41.70	42.55	43.85	44.50	53.50	54.40	55.20	59.30	60.10	62.95	71.10	71.70	73.30	90.15	98.00
	Hendrie Gray Tube	3.45	3.65	4.05	4.25	4.40	4.45	4.75	.....	5.80	5.90	6.05	6.25	6.45	6.55	6.70	7.65	7.80	7.85	8.00	8.25	8.35	9.40	9.65	9.80	10.80	11.00
	California Red Tube	4.35	4.40	4.50	5.30	5.35	5.40	5.70	.....	6.70	6.90	7.00	7.15	7.30	7.45	7.60	9.20	9.40	9.65	9.85	10.05	10.30	11.65	11.75	12.00	12.60	12.75
HIGHWAY	Non-Skid	qs14.85	qs14.30	.....	qs18.35	.....	c21.75	.....	.....	.....	qs28.50	qc29.20	c30.40	c31.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
HOOD	Plain	20.30	20.80	22.35	27.50	29.45	30.95	33.10	.....	.....	36.20	36.85	37.55	38.50	39.60	40.65	53.00	53.80	55.95	57.40	58.50	59.85	68.85	70.20	71.35	91.50	92.50
	Non-Skid	24.30	24.85	27.00	31.50	34.15	35.45	37.95	.....	.....	43.75	44.65	45.85	46.75	48.95	51.45	61.05	61.95	62.60	63.90	64.50	65.75	76.30	77.40	79.00	96.50	100.65
	Puritan Plain	qs.....	qs16.75	.....	qs19.00	qs20.35	21.45	c24.20	c.....	.....	qs28.90	c29.70	c30.45	c31.15	c32.30	c33.45	.....	c40.55	c41.75	c43.30	c44.00	c45.70	c51.15	cs 52.95	c53.75	.....	.....
	Puritan Gripper Non-Skid	qs.....	qs18.95	.....	qs21.85	qs23.50	25.25	c28.85	c.....	.....	qs35.30	c35.75	c36.20	c36.85	c37.65	c39.05	.....	c47.80	c48.85	c50.50	c51.15	c52.65	c58.50	cs 60.25	c61.45	.....	.....
	Hood Red and Gray Tubes	3.85	4.00	4.50	4.75	4.90	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.60	9.45	9.60	9.75	11.20	11.75
	Puritan Red and Gray Tubes	3.40	3.45	.....	4.05	4.20	4.40	4.80	5.20	5.40	5.15	5.25	5.35	5.50	5.90	6.30	6.85	6.95	7.05	7.15	7.25	7.60	8.30	8.45	8.60	10.00	11.00
HOWE	Ribbed Tread	.....	qs18.80	.....	qs22.50	.....	.....	.....	.....	.....	qs32.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs19.20	.....	.....	.....	.....	29.40	.....	.....	.....	.....	c36.80	c37.75	c39.00	cs40.50	c42.80	.....	qc46.25	c48.20	c50.25	c52.80	cs54.05	c60.00	cs62.50	c63.95	.....	.....
	Gray Tubes	2.90	3.00	3.20	3.50	3.60	3.75	3.95	4.25	4.70	4.75	4.85	5.00	5.15	5.40	5.50	6.10	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	9.20	9.45
	Red Tubes	3.55	3.65	3.80	4.35	4.40	4.55	4.80	5.00	5.55	5.65	5.80	5.90	6.00	6.20	6.30	7.65	7.80	8.00	8.25	8.35	8.55	9.70	10.10	10.25	10.85	11.00
INDIANA	Plain	13.50	14.00	18.25	17.90	19.55	21.10	23.80	.....	.....	27.85	28.35	30.00	30.45	31.65	37.90	.....	40.85	41.75	43.25	43.95	53.75	50.90	51.75	53.65	.....	.....
	Button and Traction Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	.....	.....	31.50	32.05	33.90	34.50	36.30	43.40	.....	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	3.95	.....	.....	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	.....
	Brown Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	.....
KELLY-SPRINGFIELD	Plain	qs21.90	qs20.95	.....	25.45	s28.20	29.90	32.50	s42.00	s44.95	s35.00	36.30	37.65	38.95	40.10	41.35	s56.20	s46.35	47.95	49.40	50.75	52.10	58.95	60.65	62.15	s81.05	s93.10
	Driving Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs42.50	c43.70	c44.95	c45.90	c47.50	c49.05	c51.80	c62.85	c53.70	c55.65	c59.00	64.05	c65.40	c72.85	75.65	77.45	cs96.35	cs112.05
	Kant-Slip Tread	qs26.55	qs25.00	.....	qs31.30	qs32.30	35.70	c38.80	.....	.....	s43.15	c44.55	c45.90	c47.50	c49.05	c51.80	c62.85	c53.70	c55.65	c59.00	64.05	c65.40	c72.85	75.65	77.45	cs96.35	cs100.60
	Red Tubes	3.65	3.75	4.00	4.80	4.95	5.15	5.45	5.85	5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80	8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
KNIGHT	Blackstone Non-Skid	.....	15.85	.....	20.20	21.55	23.85	.....	.....	.....	31.85	32.40	34.25	34.85	.....	37.30	.....	42.15	42.50	44.20	44.70	.....	54.50	.....	57.35	.....	.....
	Knight Plain	.....	22.55	.....	27.95	30.05	30.80	33.45	.....	.....	37.20	38.45	.....	41.05	.....	43.25	.....	47.40	48.75	50.00	52.20	54.50	61.00	62.25	64.75	.....	.....
	Knight Non-Skid	.....	25.00	.....	31.30	32.30	35.70	38.80	.....	.....	43.15	44.55	45.90	47.50	.....	51.80	.....	53.70	55.65	59.00	64.05	65.40	72.85	75.65	77.45	96.35	112.05
	Blackstone Tubes	.....	3.10	.....	3.60	3.75	3.80	4.05	.....	.....	4.80	4.95	5.10	5.30	.....	5.55	.....	6.35	6.40	6.60	6.70	6.90	7.75	7.90	8.05	.....	.....
	Knight Red Tubes	.....	3.70	.....	4.60	4.65	4.80	.....	.....	.....	5.95	6.15	6.30	6.45	6.90	6.95	7.90	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
KOKOMO	Plain	qs15.25	qs15.85	.....	qs20.60	.....	q23.80	.....	.....	.....	qs31.40	.....	c33.65	c34.35	.....	c36.70	.....	.....	c48.35	c48.40	c49.25	c51.25	.....	.....	c58.50	.....	.....
	Gridiron Non-Skid	qs16.00	qs16.65	.....	qs21.50	.....	.q25.20	.....	.....	.....	qs33.10	.....	c35 25	c36.10	.....	c38 50	.....	.....	c48 75	c 50 90	c51.60	c53.75	.....	.....	c61.50	.....	.....
	Standard Gray Tubes	2.90	3.05	3.25	3.60	3.80	3.85	4.05	4.25	.....	4.75	4.80	5.00	5.15	5.30	5.45	.....	.....	6.20	6.35	6.60	6.85	7.80	8.10	8.35	8.80	.....
	Standard Red Tubes	3.25	3.35	3.50	4.05	4.25	4.30	4.50	4.75	.....	5.30	5.40	5.50	5.65	5.95	6.10	.....	.....	7 00	7 10	7.35	7.60	8.65	8.80	9.00	9.70	.....
	Everlaster Gray Tubes	3.45	3.55	3.95	4.30	4.45	4.50	5.00	5.10	.....	5.60	5.65	5.85	6.05	6.20	6.45	.....	.....	7.35	7.55	7.80	8.05	9.15	9.30	9.50	10.85	.....
	Everlaster Red Tubes	3.75	3.90	4.45	4.80	4.95	5.05	5.25	5.65	.....	6.20	6.30	6.50	6.65	6.90	7.15	.....	.....	8.10	8.50	8.60	8.95	10.15	10.20	10.50	12.05	.....
LEE	Standard Plain	15.75	14.25	19.00	18.30	19.40	21.45	26.75	30.25	33.00	28.10	29.00	30.00	31.05	35.55	34.20	40.70	40.50	41.70	43.15	43.85	46.65	50.90	51.75	53.65	73.05	73.80
	Standard Non-Skid	16.50	15.70	21.70	20.15	21.35	23.60	29.85	33.40	36.50	30.90	31.90	33.00	34.15	39.35	37.60	44.10	44.55	45.85	47.45	48.25	51.30	56.00	56.80	59.00	88.00	88.75
	Puncture Proof Plain	26.95	26.90	26.80	33.60	34.50	35.75	40.85	43.25	43.65	41.05	44.75	46.80	48.35	52.85	53.75	53.25	54.35	56.75	58.85	60.05	62.25	71.45	72.50	73.50	81.60	83.85
	Puncture Proof Non-Skid	29.60	28.25	33.20	34.70	35.90	37.85	44.45	46.75	47.95	43.35	47.75	50.05	51.35	57.90	58.65	61.40	59.20	60.90	63.10	64.85	70.05	76.55	77.90	79.65	95.65	98.00
	Gray Tubes	3.10	3.05	3.40	3.75	4.00	4.10	4.55	4.80	4.95	5.00	5.10	8.25	5.40	5.80	6.00	6.50	6.15	6.25	6.45	6.65	6.90	7.80	7.95	8.10	9.25	9.45
	Red Tubes	3.40	3.35	3.80	4.20	4.35	4.45	5.05	5.35	5.50	5.45	5.55	5.70	5.90	6.45	6.50	7.20	6.80	7.00	7.15	7.35	7.65	8.70	8.85	8.95	10.30	10.50
McCREARY	Plain Tread	15.50	16.45	19.90	21.60	23.30	25.60	.....	.....	.....	33.65	34.50	35.50	36.95	.....	37.60	.....	46.50	48.30	50.60	51.20	53.45	48.65	.....	61.60	.....	.....
	Non-Skid	17.50	17.95	.....	23.60	25.45	27.95	.....	.....	.....	36.85	36.95	38.95	39.85	.....	43.25	.....	.....	51.10	53.75	54.55	56.85	64.75	.....	67.05	.....	.....
	Gray	3.05	3.10	3.55	3.70	3.90	4.05	4.30	.....	.....	5.00	5.25	5.45	5.60	.....	5.90	.....	6.90	7.00	7.20	7.55	7.70	8.30	.....	8.75	.....	.....
	Red	3.85	4.00	4.60	4.85	4.90	5.10	5.40	.....	.....	6.40	6.60	6.90	7.00	.....	7.50	.....	8.35	8.50	8.70	9.00	9.20	10.25	.....	10.55	.....	.....
McGRAW	Congress Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	.....	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	.....	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Congress Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Imperial Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Imperial Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	qs42.90	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	McGraw Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	McGraw Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Pullman Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Pullman Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	7.10	7.15	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	6.50	6.30	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
McNAULL		.....	.....	.....	.....	.....	.....	.....	.....	.....	32.83	.....	42.69	.....	.....	.....	.....	54.71	.....	58.06	.....	62.42	70.65	74.44	74.44	.....	100.57
	Tubes	.....	3.90	.....	5.00	.....	5.39	5.75	.....	.....	6.38	6.49	6.71	6.93	7.04	7.20	.....	8.42	8.69	8.85	9.18	9.46	10.39	10.61	11.00	12.59	12.81
MANSFIELD	Plain	14.75	14.45	18.95	19.40	20.95	22.15	25.75	.....	26.55	27.90	29.60	30.00	31.05	35.00	33.00	.....	.....	41.80	43.12	44.35	45.60	50.20	58.10	52.25	.....	.....
	Non-Skid	16.25	15.90	.....	21.35	23.15	24.45	28.35	.....	.....	30.80	32.60	33.00	34.10	38.50	36.30	.....	.....	46.00	47.45	48.75	50.20	55.30	.....	59.05	.....	.....
	Gray Tubes	3.00	3.05	3.55	3.75	3.90	4.10	4.75	.....	5.20	4.85	5.00	5.20	5.40	5.90	5.70	.....	.....	6.50	6.60	6.85	7.05	8.05	8.60	8.30	.....	.....
	Red Tubes	3.70	.....	.....	4.40	4.60	4.80	5.50	.....	6.20	5.90	6.05	6.20	6.35	7.00	6.80	.....	.....	7.95	8.10	8.30	8.55	9.60	10.30	9.90	.....	.....
MARATHON	Runner	qs14.95	qs15.70	.....	qs19.95	qs21.40	23.35	c26.90	.....	.....	qs31.85	c32.80	c33.75	c34.70	c36.10	c37.55	qc43.80	.....	c46.55	c47.95	c49.40	c51.25	c59.95	c60.10	c61.30	cs81.80	cs83.95
	Angle Non-Skid	qs15.75	qs16.50	.....	qs21.00	qs22.50	24.55	c28.30	.....	.....	qs33.50	c34.50	c35.50	c36.50	c38.00	c39.50	qc46.10	c47.55	c49.00	c50.45	c51.90	c53.95	c61.00	c63.25	c64.50	cs86.10	cs88.35
	Heavy Red Tube	3.10	3.30	.....	4.15	4.30	4.45	4.80	.....	.....	5.55	5.70	5.90	6.05	6.20	6.40	7.45	7.65	7.85	8.10	8.30	8.50	9.50	9.80	10.05	11.25	11.60
	Gray Tube	2.80	3.05	.....	3.75	3.90	4.05	4.40	.....	.....	5.00	5.15	5.35	5.50	5.65	5.85	6.60	6.80	7.05	7.25	7.50	7.70	8.50	8.80	9.05	10.15	10.50
	Cord Runner	.....	.....	.....	qs32.35	qs33.15	34.55	.....	.....	.....	qs42.50	c43.95	c45.15	c46.35	.....	.....	qc49.50	c50.80	c52.10	c53.35	c54.65	.....	c64.80	.....	c67.90	.....	cs82.30
	Cord Angle Non-Skid	.....	.....	.....	qs34.05	qs34.90	36.40	.....	.....	.....	qs44.75	c46.25	c47.50	c48.80	.....	.....	qc52.10	c53.45	c54.85	c56.15	c57.55	.....	c68.20	.....	c71.50	.....	cs86.65

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
MARION	Plain	qs13.20	qs14.30	.....	qs18.05	c20.00	c22.00	.....	.....	.....	qs28.60	.....	c30.80	c32.55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs14.95	qs15.95	.....	qs20.40	.....	c23.90	.....	.....	.....	qs30.80	c31.50	c33.50	c34.25	c35.90	c36.50	.....	.....	c46.00	c47.30	c47.85	c49.50	c55.00	c56.65	c58.30	.....	.....
	Gray	2.90	3.00	.....	3.60	3.70	3.75	.....	.....	.....	4.75	5.00	5.20	5.30	5.45	5.55	.....	.....	6.40	6.60	6.75	7.10	8.10	8.20	8.25	.....	.....
	Red	.....	3.80	.....	4.50	4.75	4.85	.....	.....	.....	5.20	6.25	6.50	6.65	6.90	7.10	.....	.....	7.80	8.40	8.60	9.25	9.50	9.70	9.90	.....	.....
MASON	Plain Tread	14.10	14.90	.....	19.00	20.40	22.15	.....	.....	.....	29.10	29.60	31.35	31.85	.....	33.65	.....	40.85	41.75	43.25	43.95	45.70	50.90	51.75	53.65	.....	.....
	Ribbed Tread	14.85	15.95	.....	20.35	21.95	23.95	27.25	.....	.....	30.20	30.70	32.60	33.10	34.95	35.35	42.70	44.50	45.05	46.80	47.45	49.25	56.10	57.95	59.95	.....	.....
	Non-Skid	15.40	16.50	.....	21.20	22.65	24.80	28.05	.....	.....	31.50	32.05	33.90	34.50	36.30	36.90	44.55	46.35	46.75	48.60	49.15	51.05	59.95	61.05	63.10	.....	.....
	Gray Tubes	3.15	3.20	.....	3.80	3.95	4.15	4.35	.....	.....	5.05	5.35	5.55	5.70	5.90	6.00	6.90	7.05	7.15	7.35	7.65	7.80	8.50	8.70	8.95	.....	.....
	Red Tubes	3.65	3.75	.....	4.55	4.70	4.85	5.10	.....	.....	6.05	6.20	6.50	6.75	6.95	7.10	7.75	7.85	8.05	8.20	8.45	8.65	9.50	9.75	9.90	.....	.....
MICHELIN	Plain Tread	qs14.95	qs15.60	.....	qs21.50	qs22.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Universal Tread	.....	.....	.....	s22.50	.....	c25.40	c27.10	.....	.....	s31.50	c35.15	c35.40	c36.65	cs38.25	c39.80	qc44.75	46.50	c47.60	c50.10	c51.15	cs52.95	c58.40	cs59.80	c60.50	.....	.....
	Tubes	3.55	3.70	.....	.....	3.70	4.40	4.80	.....	5.55	5.10	5.80	5.30	6.20	5.60	6.65	7.60	6.80	8.00	7.20	8.45	7.70	9.70	10.10	10.25	11.30	11.30
MOHAWK	Plain	qs18.70	qs19.65	.....	24.00	qs26.55	28.05	c30.65	.....	.....	qs35.35	c36.50	37.55	38.90	c40.20	42.45	.....	c45.70	47.85	49.85	52.60	c53.80	c59.65	s62.00	c63.45	cs78.95	.....
	Non-Skid	qs22.55	qs23.70	.....	30.00	qs31.10	34.45	c37.55	.....	.....	qs41.60	43.10	c44.20	45.90	c47.45	50.15	.....	c54.05	56.45	58.90	61.85	c63.35	c70.35	s73.35	75.00	cs93.10	cs96.65
	Ribbed Tread	.....	qs21.10	.....	qs25.95	.....	qc30.35	.....	.....	.....	qs38.45	qc39.65	qc40.85	c42.05	.....	.....	.....	.....	c51.65	qc53.85	c56.95	.....	c64.90	.....	c68.45	.....	.....
	Pure Gum and Red Tubes	3.40	3.55	.....	4.55	4.70	4.90	5.20	.....	.....	5.75	5.85	6.10	6.25	6.35	6.55	7.35	7.65	7.85	8.00	8.25	8.60	9.35	9.65	9.95	11.40	11.60
	Keaton	.....	.....	.....	qs31.55	.....	qc36.35	.....	.....	.....	qs43.85	qc45.40	qc46.60	qc48.35	.....	.....	qc55.55	.....	c60.00	qc61.10	c64.45	.....	c74.45	.....	c78.05	.....	.....
MONARCH	Gray Tubes	3.15	3.35	.....	4.15	4.20	4.25	.....	.....	.....	5.25	5.35	5.50	5.65	.....	6.10	.....	6.80	6.90	7.15	7.35	7.60	8.60	8.70	8.95	.....	.....
	Red Tubes	3.45	3.70	.....	4.65	4.70	4.75	.....	.....	.....	5.85	5.95	6.10	6.30	.....	6.75	.....	7.50	7.75	7.90	8.10	8.45	9.60	9.75	9.85	.....	.....
NABOB	Plain Tread	qs19.95	qs20.95	.....	s25.45	qs28.20	29.90	32.50	.....	.....	q35.00	c36.30	c37.65	c38.95	c40.10	c41.35	.....	c46.35	c47.95	c49.40	c50.75	c51.20	c58.95	c60.65	c62.15	c81.05	c93.10
	Safety Traction Non-Skid	.....	qs25.00	.....	s31.30	qs32.30	35.70	38.80	.....	.....	q43.15	c44.55	c45.90	c47.50	c49.05	c51.80	.....	c53.70	c55.65	c59.60	c64.05	c65.40	c72.85	c75.65	c77.45	c96.35	c112.05
	Tubes	3.65	3.75	.....	4.60	4.95	5.15	5.45	.....	.....	6.10	6.20	6.40	6.65	6.75	6.90	.....	8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
NASSAU	Plain	12.85	13.20	14.60	17.10	18.25	19.95	23 05	22 90	24 75	26 25	26.25	28.20	28.80	31.65	31.00	33.45	38.90	38.45	40.40	40.95	42.75	45.35	49.65	48.75	60.70	63.70
	Non-Skid	14.40	14.85	16.50	18.65	20.70	22.40	26.05	23.60	27.90	29.50	30.20	31.65	32.40	35.60	34.65	37.65	43.70	43.35	45.40	46.10	48.15	51.30	55.25	54.80	69.45	72.95
	Nassau Gray Tubes	.....	.....	3.45	3.85	3.90	3.95	4.60	4.90	5.05	4.85	4.95	5.15	5.25	5.90	5.60	6.60	6.25	6.35	6.65	6.80	7.05	7.95	8.75	8.35	9.40	9.60
NATIONAL	Plain	12.30	12.00	16.05	15.60	16.40	18.25	21.30	.....	.....	23.95	24.40	25.55	26.10	29.80	30.60	.....	34.05	35.10	36.75	37.35	42.75	41.95	47.50	44.40	.....	.....
	Non-Skid	12.90	12.65	16.85	16.30	17.25	19.15	22.30	.....	.....	25.05	25.60	26.70	27.40	31.35	32.15	.....	35.75	36.95	38.55	39.25	44.90	44.10	49.95	46.65	.....	.....
	Gray Tubes	3.25	3.20	3.60	3.95	4.00	4.05	4.80	.....	.....	5.00	5.10	5.25	5.40	6.10	6.30	.....	6.45	6.60	6.80	7.00	8.00	8.20	9.05	8.55	.....	.....
	Red Tubes	3.55	3.50	4.00	4.40	4.45	4.50	5.30	.....	.....	5.60	5.70	5.85	6.00	6.80	6.95	.....	7.15	7.35	7.50	7.75	8.80	9.15	10.00	9.40	.....	.....
NEEDHAM	Plain	qs13.20	qs14.30	.....	18.15	19.25	21.20	c23.80	.....	.....	28.35	c29.00	c30.40	c30.95	c32.25	c32.75	.....	c39.90	c41.25	c43.10	c43.65	c45.30	c49.05	c49.70	c51.60	s71.45	cs73.20
	Non-Skid	.....	.....	.....	20.90	21.90	24.30	c27.25	.....	.....	32.85	c33.35	c34.85	c35.50	c36.95	c37.45	.....	c46.55	c47.50	c49.45	c50.00	c51.90	c56.20	c56.95	c59.15	s81.85	cs83.90
	Tubes	2.80	2.90	.....	3.30	3.40	3.45	3.60	.....	.....	4.55	4.70	4.85	4.95	5.05	5.15	.....	6.10	6.20	6.30	6.40	6.60	7.55	7.70	7.85	8.45	8.55
NEWCASTLE	Plain	.....	14.75	.....	19.20	21.10	22.45	23.50	.....	.....	29.45	29.95	31.40	32.00	36.60	37.60	.....	.....	43.15	45.20	45.90	52.45	51.55	58.40	55.60	.....	.....
	Non-Skid	.....	16.30	.....	21.25	23.90	24.50	26.60	.....	.....	30.80	31.50	32.80	33.70	38.50	39.50	.....	.....	45.40	47.40	48.25	55.20	54.10	61.25	57.35	.....	.....
	Shenango Non-Skid	.....	.....	.....	28.15	.....	32.15	.....	.....	.....	.....	.....	c41.30	c47.25	.....	.....	.....	.....	.....	c53.10	e57.65	.....	c65.55	.....	cs69.70	.....	.....
	Pure Gum Gray Tubes	.....	3.20	.....	4.10	4.25	s4.40	4.70	.....	.....	5.20	5.30	5.50	5.65	5.75	5.90	.....	.....	7.10	7.25	7.50	7.75	8.50	8.70	9.00	.....	.....
NORWALK	Ribbed Plain	.....	s19.65	.....	s25.45	.....	.....	.....	.....	.....	.....	.....	.....	cs40.75	.....	.....	.....	.....	.....	.....	cs54.80	.....	.....	.....	cs63.85	.....	.....
	Non-Skid	.....	s20.70	.....	s26.75	s28.25	c30.75	.....	.....	.....	s39.15	c39.85	q41.90	q42.85	.....	cs45.55	.....	.....	c54.25	q56.65	c57.50	cs59.90	c63.35	cs64.20	q67.10	.....	.....
	Gray Tubes	3.30	3.35	3.95	4.15	4.25	4.40	5.20	5.30	.....	5.40	5.55	5.70	5.85	6.25	6.30	7.15	.....	7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.75	6.00	.....	5.95	6.15	6.30	6.45	6.90	6.95	7.90	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
ORVILLE	Non-Skid	14.10	qs15.25	.....	qs22.10	.....	22.80	.....	.....	.....	qs31.75	37.70	38.20	38.55	.....	39.80	.....	.....	.....	54.75	55.20	.....	.....	.....	66.95	.....	.....
	Gray	2.95	3.05	.....	3.45	.....	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	.....	6.60	6.65	6.75	7.10	7.25	8.10	8.25	8.40	.....	.....
	Pure Gum and Red Special	3.90	4.10	.....	4.70	.....	4.85	.....	.....	.....	6.45	6.60	6.75	6.90	7.10	7.25	.....	8.50	8.65	8.85	9.00	9.20	10.55	10.70	10.90	.....	.....
PALMER	Tubes	.....	6.35	.....	6.60	.....	7.00	.....	.....	.....	8.45	8.80	9.15	9.45	9.80	10.10	10.25	11.10	11.40	11.75	12.25	.....	13.60	13.80	14.15	.....	.....
PEARCE	Morton Plain	11.00	11.85	.....	15.35	16.20	17.65	20.00	.....	.....	24.00	24.95	25.20	25.75	26.95	27.35	33.10	34.10	34.20	35.75	36.20	39.85	43.95	44.55	45.30	.....	.....
	Non-Skid	12.00	12.85	.....	16.95	18.00	19.65	22.40	.....	.....	27.10	27.90	28.50	29.50	30.20	31.10	36.00	38.00	39.00	40.15	41.40	42.00	47.20	48.50	50.00	.....	.....
	Germantown Cord Plain	.....	17.50	.....	21.95	22.25	24.00	39.00	.....	.....	33.15	34.75	35.95	36.10	40.00	43.50	38.15	45.25	46.75	48.75	50.50	52.00	56.50	.....	58.15	.....	.....
	Non-Skid	.....	18.25	.....	23.75	25.00	27.30	41.50	.....	.....	36.35	37.10	38.95	39.70	42.35	49.00	45.00	50.20	51.90	54.25	55.00	57.30	63.80	.....	64.75	.....	.....
	Red Tubes	3.25	3.45	.....	3.95	4.10	4.25	4.50	.....	.....	5.35	5.45	5.75	5.95	6.20	6.40	6.50	6.75	7.45	7.55	7.80	8.05	9.00	9.20	9.30	.....	.....
PEERLESS	Non-Skid	.....	16.80	.....	21.35	23.00	24.95	.....	.....	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	.....	.....	.....	62.95	.....	.....
	Gray Tubes	.....	3.05	.....	3.45	3.65	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	.....	.....	.....	6.50	6.75	6.90	.....	.....	.....	8.40	.....	.....
	Red Tubes	.....	3.40	.....	3.95	4.15	4.20	.....	.....	.....	5.35	5.50	5.70	5.95	.....	.....	.....	.....	7.25	7.40	7.55	.....	.....	.....	9.10	.....	.....
	Liberty Plain	.....	14.10	.....	18.95	20.30	22.40	.....	.....	.....	29.90	30.45	32.20	32.75	.....	.....	.....	.....	44.40	46.15	46.70	.....	.....	.....	59.95	.....	.....
	Liberty Non-Skid	.....	15.70	.....	19.95	21.35	23.60	.....	.....	.....	31.50	32.05	33.90	34.50	.....	.....	.....	.....	46.75	48.60	49.15	.....	.....	.....	63.10	.....	.....
	Liberty Gray Tubes	.....	3.05	.....	3.45	3.65	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	.....	.....	.....	6.50	6.75	6.90	.....	.....	.....	8.40	.....	.....
	Liberty Red Tubes	.....	3.40	.....	3.95	4.15	4.20	.....	.....	.....	5.35	5.50	5.70	5.95	.....	.....	.....	.....	7.25	7.40	7.55	.....	.....	.....	9.10	.....	.....
PENNSYLVANIA	Bar O Circle	12.80	13.45	.....	17.60	19.50	20.65	24.00	.....	.....	27.00	27.40	28.70	29.40	33.50	34.45	.....	38.40	39.70	41.40	42.05	48.15	47.35	53.60	50.10	65.15	67.80
	Ebony	14.05	14.55	19.25	18.55	19.80	21.90	25.00	31.65	34.75	29.20	29.70	31.40	32.00	33.65	34.20	41.30	43.00	43.30	45.05	45.55	47.30	55.55	56.55	58.45	70.90	73.85
	Vacuum Cup	15.60	16.10	21.35	20.60	22.00	24.30	27.75	35.20	38.65	32.40	33.00	34.90	35.55	37.40	38.00	45.90	47.75	48.10	50.05	50.60	52.55	61.70	62.85	64.95	78.75	82.00
	Ton-Tested Gray Tubes	2.80	2.90	3.15	3.40	3.55	3.70	4.05	4.40	4.90	4.95	5.05	5.25	5.45	5.55	5.75	6.50	6.65	6.70	6.80	6.95	7.25	8.15	8.25	8.40	8.80	9.00
PERFECTION	Plain	18.00	19.25	.....	23.20	24.65	27.50	29.75	.....	.....	32.10	34.10	35.20	36.40	37.60	38.85	40.10	41.35	42.70	43.90	45.25	47.45	52.60	53.85	54.00	72.70	76.00
	Non-Skid	21.25	22.25	.....	27.95	28.90	32.10	34.65	.....	.....	38.75	40.75	41.15	42.45	45.90	47.40	.....	48.30	50.00	52.50	55.00	57.35	65.20	67.50	69.00	85.75	87.55
	Gray Tubes	3.20	3.30	3.50	4.20	4.35	4.50	4.80	5.10	5.25	5.35	5.45	5.65	5.80	5.90	6.05	6 85	7.10	7.30	7.45	7.70	7.95	8.75	8.95	9.25	10.55	10.75
	Red Tubes	3.40	3.55	3.70	4.50	4.60	4.85	5.30	5.60	5.65	5.75	5.85	6.10	6.25	6.35	6.50	7.45	7.60	7.80	7.95	8.20	8.45	9.30	9.50	9.80	11.10	11.35
PHARIS	Plain	13.10	13.85	17.50	17.90	18.65	20.55	22.90	.....	.....	27.60	28.05	29.25	29.80	31.00	31.50	45.40	.....	40.00	41.55	42.10	43.55	47.25	47.85	49.70	.....	.....
	Non-Skid	.....	14.85	.....	19.15	19.95	22.00	24.60	.....	.....	29.50	30.05	31.40	31.90	33.20	33.75	47.75	42.20	42.80	44.50	45.00	46.65	50.60	51.30	53.15	83.05	73.70
	Gray Tubes	3.15	3.35	3.45	3.75	3.80	3.95	4.15	.....	.....	5.25	5.35	5.45	5.55	5.80	5.90	6.75	6.90	7.00	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.70
	Red Tubes	3.50	3.65	3.75	4.20	4.25	4.30	4.70	.....	.....	5.80	5.90	6.10	6.20	6.40	6.50	7.60	7.70	7.75	7.85	8.10	8.25	9.40	9.70	9.80	10.50	10.65
PORTAGE	Plain	s14.00	s15.10	s16.75	s19.60	s20.70	22.45	25.50	s27.00	s28.45	s30.05	30.60	32.10	32.85	34.35	35.00	s43.10	s44.55	43.65	45.75	46.40	48.30	52.20	s53.00	55.35	s79.70	.....
	Daisy Non-Skid	s16.20	s17.45	s19.30	s22.45	s23.70	25.90	29.35	.....	s32.80	s34.45	35.15	36.95	37.75	39.55	40.30	s49.75	51.15	50.25	52.50	53.35	55.60	60.05	s61.00	63.50	s87.70	s89.55
	Gray or Red Tubes	3.20	3.45	3.75	4.20	4.30	4.45	4.75	4.95	5.50	5.65	5.90	6.10	6.25	6.45	6.60	7.35	7.50	7.65	7.80	8.10	8.25	9.05	9.30	9.40	10.25	10.40

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
PORTER	Giant	qs15.00	qs16.45	.....	qs21.50	qs22.65	24.35	c26.50	.....	.....	qs31.65	c32.35	c33.30	c34.35	c35.25	c36.30	qc44.00	c45.25	c46.25	47.70	c48.80	c50.00	c56.10	cs57.20	c59.25	.....	.....
	Non-Skid	qs16.00	qs17.55	.....	qs22.85	qs24.25	26.30	c27.95	.....	.....	qs34.95	c35.45	c36.60	c37.40	c39.45	c40.00	qc47.75	c49.00	c49.75	51.15	c52.55	c53.90	c59.95	cs61.60	c62.95	.....	.....
	Gray Tubes	2.85	3.00	.....	3.60	3.70	3.75	3.95	.....	.....	4.75	4.95	5.05	5.25	5.45	5.60	6.20	6.35	6.50	6.60	6.75	6.95	7.85	8.00	8.15	.....	.....
	Red Tubes	3.15	3.40	.....	3.95	4.10	4.20	4.40	.....	.....	5.30	5.45	5.65	5.85	5.95	6.15	7.00	7.15	7.25	7.35	7.50	7.75	8.75	8.90	9.00	.....	.....
QUAKER	Plain	s18.40	s19.45	s21.00	24.30	s25.45	29.00	31.20	.....	.....	s36.35	36.85	38.40	39.05	c40.75	41.40	qs49.50	.....	53.00	c55.00	55.70	c57.80	c62.70	63.35	c65.90	cs85.60	cs89.15
	T.T.T. Non-Skid	s19.80	s21.45	s23.30	27.00	s28.05	32.00	34.80	.....	.....	s40.25	41.00	42.65	43.45	c45.30	46.00	qs52.10	.....	55.80	c58.00	58.60	c60.70	c65.95	66.70	c69.30	cs90.20	cs93.90
	Gray Tubes	3.20	3.35	3.50	3.75	3.95	4.00	4.20	4.35	5.00	5.10	5.40	5.50	5.60	5.80	5.90	6.80	7.00	7.05	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.85
	Red Tubes	3.50	3.70	3.90	4.15	4.35	4.40	4.60	4.85	5.50	5.55	5.95	6.05	6.15	6.40	6.50	7.55	7.70	7.75	7.85	8.00	8.20	9.40	9.50	9.80	10.40	10.90
RACINE	Plain	14.20	15.20	17.70	18.70	19.75	21.75	26.25	28.45	30.00	28.70	29.25	31.25	32.05	32.90	33.45	39.60	40.45	41.75	42.35	43.75	46.15	51.50	53.00	54.50	68.95	71.25
	Country Road	16.55	17.75	20.85	21.65	22.60	25.50	28.75	33.00	35.15	33.00	34.75	36.80	37.35	37.70	38.05	47.50	48.40	49.10	51.35	52.15	54.20	62.00	63.50	65.00	81.40	83.60
	Ribbed Cord	.....	.....	.....	.....	.....	39.80	.....	.....	.....	48.80	50.50	51.90	53.25	.....	.....	56.95	58.35	59.95	61.35	62.90	.....	74.60	76.30	78.00	92.50	94.60
	Non-Skid Cord	.....	.....	.....	.....	.....	42.35	.....	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.35	65.40	67.00	.....	79.40	81.40	83.20	98.60	100.85
	Gray Tubes	2.85	3.00	3.25	3.50	3.60	3.75	3.90	4.15	4.60	4.70	4.90	5.00	5.20	5.40	5.50	6.20	6.35	6.45	6.55	6.75	6.90	7.85	7.95	8.10	8.45	8.65
	Red Tubes	3.40	3.70	3.95	4.05	4.30	4.40	4.60	4.85	5.40	5.50	5.65	5.95	6.10	6.25	6.50	7.20	7.45	7.50	7.70	7.80	8.05	9.15	9.30	9.40	9.90	10.00
RACINE HORSESHOE	Plain	qs16.00	qs16.50	qs17.50	20.50	qs21.00	22.50	23.50	.....	qs28.50	qs26.50	28.50	29.00	29.50	31.00	31.50	qc36.50	qc36.50	36.50	38.00	39.00	40.00	44.00	45.00	46.00	cs65.00	cs66.00
	Non-Skid	qs17.00	qs17.50	qs19.50	21.50	qs22.00	24.00	27.00	.....	qs32.50	qs31.00	31.50	32.00	32.50	34.50	35.50	qc40.00	qc41.00	42.00	43.00	44.00	45.00	51.00	52.00	52.50	cs69.00	cs70.00
	Cord Non-Skid	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	qc46.50	qc47.50	48.50	.....	.....	.....	qc55.50	56.50	57.50	58.50	.....	68.50	.....	70.50	.....	cs88.50
	Gray Tubes	3.00	3.05	3.40	3.75	3.80	3.85	4.00	.....	4.70	4.75	4.85	5.00	5.15	5.45	5.50	6.15	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	8.75	9.25
	Red Tubes	.....	3.40	.....	4.25	4.35	4.45	.....	.....	.....	5.45	5.50	5.60	5.75	.....	6.25	.....	.....	7.50	7.75	7.80	7.90	8.80	8.95	9.25	9.50	9.75
RECORD	Ribbed Tread	.....	qs14.30	.....	qs18.35	.....	qc21.75	.....	.....	.....	qs28.50	qc29.20	c30.40	c31.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
REPUBLIC	Plain	qs14.15	qs15.20	qs19.30	19.30	qs20.75	22.50	25.65	s32.60	s34.45	s30.05	30.70	32.25	32.95	34.45	35.00	41.05	c42.30	43.75	45.80	46.40	48.35	53.65	54.35	56.85	s79.05	s78.25
	Staggard Non-Skid	qs16.60	qs17.70	qs22.50	22.55	qs24.40	26.40	29.95	s38.40	s40.25	s35.20	35.90	37.70	38.50	40.30	40.90	48.10	c49.50	51.15	53.60	54.30	56.60	62.75	63.65	66.55	92.50	89.00
	Gray Tubes	2.90	2.95	3.20	3.45	3.60	3.75	4.15	4.40	4.90	5.05	5.20	5.35	5.55	5.70	5.85	6.55	6.75	6.80	6.95	7.05	7.35	8.25	8.40	8.50	8.95	9.10
	Blackline Red Tubes	3.35	3.55	3.85	4.15	4.35	4.40	4.65	4.90	5.45	5.60	5.70	5.95	6.20	6.40	6.50	7.20	7.30	7.60	7.70	7.90	8.15	9.15	9.30	9.50	9.90	10.20
REVERE	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Anti-Skid Casings	15.25	14.50	.....	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	9.40
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	11.25
	Granite Tread	.....	16.40	.....	21.35	22.45	24.55	.....	.....	.....	33.50	34.10	35.90	36.65	.....	38.95	.....	47.15	48.75	50.95	51.70	53.85	57.85	.....	61.25	.....	.....
	Cord Casings	.....	.....	.....	.....	.....	39.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
REYNOLDS	Plain	.....	17.50	.....	21.90	.....	24.90	27.50	.....	.....	31.60	33.90	35.10	36.10	37.70	38.80	44.55	45.65	47.60	48.85	49.60	49.90	57.50	58.90	59.75	70.30	72.80
	Non-Skid	.....	24.40	.....	29.80	.....	31.60	34.65	.....	.....	40.10	41.45	42.70	44.60	45.70	46.80	54.80	55.90	57.75	58.45	59.70	60.90	67.70	68.50	69.75	90.50	93.25
	Para Tubes	.....	3.75	.....	5.25	.....	5.50	6.00	.....	.....	7.25	7.50	7.50	8.00	8.00	8.50	9.50	10.00	10.00	10.00	10.50	10.75	10.00	11.50	12.50	13.75	14.75
SAVAGE	Plain	qs12.00	qs12.65	16.45	qs16.05	qs16.85	18.40	20.45	c25.75	s26.65	qs23.80	24.70	25.60	26.05	27.25	28.50	.....	c34.90	c36.35	c37.60	c38.20	c39.40	c42.75	c43.25	c45.00	cs67.40	cs59.90
	Non-Skid	qs14.20	qs15.20	19.80	qs19.30	qs20.25	22.00	24.75	c29.80	s31.25	qs27.85	28.30	29.30	29.85	31.30	32.80	.....	c39.20	c41.40	c43.15	c43.95	c46.30	c46.45	c49.45	c51.15	cs77.10	cs68.20
	Grafinite Tubes	3.15	3.25	3.50	3.95	4.10	4.25	4.50	4.90	5.20	5.15	5.35	5.40	5.45	5.55	5.65	.....	6.55	6.80	6.90	7.15	7.30	8.05	8.30	8.40	9.90	10.05
SCHAVOIR	Gray Tubes	3.05	3.10	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.75	4.85	5.00	5.15	5.80	5.50	6.50	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	10.00	9.45
	Red Tubes	3.10	3.35	3.80	4.20	4.25	4.30	5.00	5.35	5.50	5.30	5.40	5.55	5.70	6.00	6.10	7.20	6.80	7.00	7.15	7.35	7.65	8.60	8.70	8.95	11.10	10.50
	Jumbo Red Tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.70	6.90	7.05	7.15	7.35	7.50	.....	8.40	8.80	9.05	9.20	9.40	10.90	11.10	11.25	.....	13.15
SEMPLE	Semco Red Tubes	3.60	3.75	3.90	4.50	4.60	4.75	5.05	.....	.....	6.05	6.20	6.40	6.60	6.75	6.95	7.95	8.20	8.35	8.50	8.70	8.90	9.85	10.05	10.35	11.00	11.30
SOUTHERN	Plain	qs12.80	qs13.20	.....	q17.00	qs18.10	20.10	c22.50	.....	.....	.....	qc27.25	c28.40	c29.00	c30.00	c30.45	.....	.....	.....	c41.10	c41.80	c43.10	.....	qc50.00	c51.70	.....	.....
	S Non-Skid	.....	qs14.70	.....	q19.50	.....	22.60	.....	.....	.....	28.70	qc30.10	c31.45	c32.20	.....	c33.65	cs42.60	.....	qc44.45	c46.10	c46.65	c48.25	qc54.85	.....	c57.65	.....	.....
	Red Tubes	3.45	3.70	.....	4.25	4.35	4.40	4.60	.....	.....	5.85	6.00	6.20	6.30	6.45	6.65	7.55	.....	7.75	7.90	8.00	8.20	9.15	9.30	9.45	.....	.....
SPEEDWAY	Non-Skid	.....	qs18.66	.....	qs23.33	.....	c30.00	c37.33	.....	.....	qs34.99	c36.40	c37.80	c39.20	.....	c42.00	.....	qc53.33	c53.33	c54.66	c56.00	qc59.33	qc68.60	qc70.00	qc70.00	.....	.....
	Red Tubes	4.33	4.46	.....	5.66	6.00	6.33	6.66	6.98	6.98	7.33	7.66	8.00	8.33	8.66	9.00	.....	9.69	9.85	10.08	10.40	10.77	12.00	12.66	13.33	14.66	15.33
STANDARD FOUR	Super Tread	14.10	14.70	.....	18.70	20.45	22.10	.....	.....	.....	29.10	29.65	31.35	31.85	.....	.....	.....	.....	43.65	45.20	45.95	47.80	53.20	.....	56.05	.....	.....
	Non-Skid	15.10	15.70	.....	20.00	.....	23.60	.....	.....	.....	31.55	32.10	33.90	35.40	.....	36.90	.....	.....	46.75	48.60	49.20	51.05	59.95	.....	63.10	.....	.....
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	3.95	.....	.....	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	10.80
STAR	Ribbed Tread	.....	qs22.00	.....	qs26.50	qs28.40	c30.45	.....	.....	.....	s37.50	qc39.20	qc40.50	c41.75	.....	.....	c48.90	qc50.50	c52.10	c53.70	c55.30	.....	c63.85	cs66.05	c68.25	cs86.00	.....
	All Star Non-Skid	.....	qs24.00	.....	qs20.00	.....	c32.10	.....	.....	.....	s39.70	qc41.00	qc42.25	c43.70	.....	c46.40	c50.25	qc51.85	c53.50	c55.00	c56.60	cs58.20	c66.00	cs68.20	c70.40	cs88.50	cs94.00
	Pure Gum Tubes	.....	3.65	.....	4.70	4.90	5.10	5.40	.....	.....	5.95	6.10	6.30	6.45	6.65	6.80	7.60	7.80	8.00	8.20	8.45	8.65	9.80	9.65	10.00	11.60	11.65
STERLING	Sterling High Bar Non-Skid	qs17.46	q20.80	.....	qs26.67	28.32	cs29.81	.....	.....	.....	34.76	c43.64	c45.10	c46.55	.....	s49.46	s58.19	c59.65	c61.10	c62.56	c64.00	c65.46	c72.73	c74.20	c77.10	s81.46	s84.38
	Sterling Seamless Red Tubes	3.71	3.97	4.28	5.40	5.50	5.66	6.05	6.31	6.29	6.47	6.59	6.83	7.02	7.14	7.38	8.11	8.40	8.65	8.89	9.13	9.44	10.46	10.70	10.89	12.46	12.83
STRONGHOLD	Plain	.....	17.20	.....	22.05	23.50	25.45	28.55	.....	.....	32.60	33.30	34.65	35.35	37.10	37.70	.....	41.15	42.35	43.70	44.90	46.15	52.30	53.85	55.30	.....	.....
	Stronghold Non-Skid	.....	18.85	.....	24.15	25.45	27.75	31.25	.....	.....	35.70	36.25	37.95	38.70	40.60	41.15	45.50	47.10	48.75	50.35	54.20	56.60	60.70	61.45	63.90	.....	.....
	Gray Tubes	.....	3.60	.....	4.40	4.45	4.55	4.85	.....	.....	5.90	6.05	6.30	6.50	6.70	6.90	7.70	7.90	8.05	8.20	8.35	8.60	9.65	9.80	10.05	.....	.....
	Red Tubes	.....	3.95	.....	4.80	4.85	5.00	5.20	.....	.....	6.55	6.75	6.95	7.10	7.30	7.55	8.25	8.40	8.55	8.70	9.10	9.25	10.40	10.55	10.75	.....	.....
SWINEHART	Plain	qs14.00	qs15.10	qs19.20	s19.20	qs20.60	22.40	25.40	s28.50	.....	qs29.85	30.50	32.00	32.70	c34.25	34.75	s40.80	s42.00	43.45	c45.45	46.15	cs48.10	c53.30	s54.10	56.50	cs79.05	cs74.20
	Ribbed	qs15.70	qs16.80	qs21.35	s21.35	qs23.00	25.00	28.30	s31.70	.....	qs33.30	34.00	35.70	36.45	c38.10	38.70	s45.45	s46.90	48.40	c50.60	51.40	cs53.60	c63.50	s64.35	67.20	cs92.40	cs88.00
	Non-Skid	qs16.40	qs17.60	qs22.40	s22.40	qs24.15	26.25	29.75	s33.35	.....	qs34.90	35.70	37.45	38.30	c40.05	40.65	s47.70	s49.30	50.80	c53.15	53.95	cs56.30	c66.65	s67.60	70.55	cs97.25	cs92.65
	Tubes	2.90	3.00	3.20	3.40	3.55	3.60	3.80	3.95	.....	4.70	4.85	5.00	5.10	5.20	5.30	6.20	6.30	6.30	6.35	6.45	6.60	6.80	7.75	7.90	8.05	8.40	8.60
TEN BROECK	Plain	qs12.39	qs13.09	qs16.63	q16.56	qs17.39	19.16	21.37	.....	.....	qs25.60	25.99	27.19	27.69	28.77	29.09	.....	.....	c38.00	39.46	39.90	41.42	s46.55	s47.11	s47.68	.....	cs64.00
	Non-Skid	qs13.91	qs14.86	.....	q19.48	qs20.42	22.26	25.16	.....	qs29.21	qs30.48	31.05	32.63	33.33	34.91	35.47	.....	.....	c43.13	45.19	45.72	46.46	cs51.16	s51.98	54.14	.....	cs74.56

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Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
BRISCOE (Continued) Ribbed		qs14.96		q19.48	qs20.42	22.26				qs30.48	31.06	32.63	33.33					43.12	45.19			s51.16	s51.98			s74.56
Gray Tubes	3.02	3.14	3.32	3.56	3.68	3.75	3.92	4.11	4.77	4.89	5.08	5.20	5.32	5.44	5.56	6.46		6.65	6.77	6.89	7.07	8.10	8.22	8.40	9.00	9.13
CHERMOID Non-Skid and Ribbed Tread	qs24.70	qs24.85		qs31.25	qs33.40	c35.90	c39.00		qs43.60	qs43.35	c44.85	c46.15	c47.80	48.50	c51.60	c57.50	qc55.95	c57.20	c59.65	c63.25	c65.10	c72.55	sc75.00	c77.75	sc96.05s	c103.05	
Brown and DeLuxe Red Tubes	q3.80	3.85		4.90	5.00	5.15	5.45		6.10	6.20	6.30	6.40	6.60	6.80	7.00	8.00	8.15	8.30	8.45	8.75	9.10	10.00	10.20	10.50	12.10	12.40
CHRISTIAN																										
CLINCHER Plain	qs14.30	s16.00	cs17.60	s20.00	qs21.15	c23.05	c26.10		cs29.00	qs30.60	c31.35	c32.90	c33.65	c35.15	c35.70			c44.70	c46.70	c47.35	c49.30	c52.00	c52.85	c55.25	cs73.80	cs76.10
Heldtite Non-Skid	qs15.60	s17.30	cs18.85	s22.10	qs 23.25	c25.10	c28.15		cs31.80	qs33.30	c34.05	c35.65	c36.30	c37.90	c38.45			c48.10	c50.10	c50.75	c52.75	c55.50	c56.25	c58.65	cs79.90	cs82.25
Extra Heavy Red	3.55	3.70	3.85	4.25	4.35	4.40	4.80		5.60	5.75	5.90	6.10	6.20	6.40	6.65			8.00	8.20	8.45	8.55	9.70	10.10	10.25	11.30	11.50
UNITED STATES Plain	13.25	13.80	16.85	17.95	18.85	20.80	27.15	30.25	33.75	27.45	28.00	29.30	30.05	36.20	31.90	43.80	39.15	40.40	42.25	42.90	44.65	48.20	56.25	51.10	76.90	91.45
Usco Non-Skid	15.25	14.50	17.70	18.80	19.80	21.85	28.45			28.80	29.35	30.80	31.50	38.00	33.50	46.00	41.10	42.45	44.35	45.05	46.85	50.60	59.05	53.70	80.70	
Chain Non-Skid	16.50	16.40	19.95	21.35	22.45	24.55	31.90	35.60	41.10	33.40	34.10	35.90	36.65	44.15	38.95	52.70	47.15	48.75	50.95	51.70	53.85	57.85	67.65	61.25	91.45	109.70
Nobby Non-Skid	20.70	22.10	28.30	28.70	30.25	33.00	43.05	47.80	49.20	40.00	40.80	42.85	43.65	49.85	46.60	68.20	55.20	57.10	59.65	60.50	63.05	70.20	71.25	74.30	98.30	100.50
Royal Cord Non-Skid						39.45					50.15	51.40	52.85		55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40		83.50
Gray Tubes	2.85	3.00	3.15	3.75	3.85	4.00	4.30	4.50	4.70	4.85	5.00	5.15	5.25	5.45	5.65	6.15	6.40	6.45	6.60	6.85	7.10	8.00	8.15	8.30	9.25	9.40
Red Tubes	3.65	3.75	4.00	4.65	4.80	4.90	5.35	5.45	5.85	6.00	6.05	6.15	6.25	6.55	6.65	7.90	8.00	8.10	8.25	8.40	8.50	9.65	9.90	10.10	11.10	11.25
VICTOR Plain	17.10	18.05		22.25		25.85				34.55	35.15	36.70	37.30	38.90	39.30			46.50	48.00	48.85	50.70		60.60			
Ribbed		18.90		23.45		27.20				36.25	37.90	38.50	39.20					48.90	50.95	51.40		60.65	61.45	63.75		
Non-Skid	19.10	20.25		25.15	28.15	28.85				38.72	39.40	41.10	41.90	43.55	44.00	53.10	53.35	53.90	55.00	57.75	59.75	68.00	68.75	71.40	91.45	93.40
Victor Gray Tubes	3.10	3.30		3.85	4.15	4.25				5.20	5.30	5.45	5.60	5.85	6.00	6.80	6.95	7.10	7.25	7.45	7.60	8.50	8.65	8.85	9.35	9.65
Victor Red Tubes	3.40	3.60		4.25	4.80	4.90				5.75	5.95	6.10	6.30	6.45	6.60	7.70	7.75	7.90	8.15	8.30	8.45	9.40	9.60	9.80	10.60	10.75
Springfield Tubes	4.25	4.50		5.55	5.70	5.80				6.75	6.90	7.10	7.25		7.55		8.85	9.05	9.30	9.50	9.70	10.55	10.80	11.00	12.80	13.45
Springfield Red Tubes	4.60	4.85		6.00	6.10	6.20				7.30	7.40	7.60	7.75		8.15		9.60	9.80	10.05	10.25	10.45	11.40	11.60	11.90	13.90	14.55
VITALIC Non-Skid		qs15.50		qs20.10		q23.55				qs30.80	qc31.45	32.85	33.70						47.40	48.30	50.35	qc54.20		57.35		
Red and Gray Tubes	3.75	3.85	4.00	4.60	4.75	4.85	5.10	5.25	5.95	6.05	6.15	6.25	6.40	6.50	6.60	7.80	7.90	8.05	8.15	8.30	8.45	9.90	10.00	10.20	11.85	12.10
Extra Heavy Gray Tubes	4.25	4.35	4.60	5.15	5.35	5.50	5.85	6.00	6.70	6.80	7.05	7.20	7.35	7.55	7.70	8.80	8.95	9.15	9.30	9.45	9.70	11.35	11.55	11.75	13.50	14.05
VULCAN Gray Tubes	3.30	3.35		4.15	4.25	4.40	5.20			5.40	5.55	5.70	5.85	6.25	6.30			7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
Indian Red Tubes	3.65	3.70		4.60	4.65	4.80	5.75			5.95	6.15	6.30	6.45	6.90	6.95			7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
WILSON Wearwell Plain	q12.55	q12.20		q15.85		q18.55					q24.75		q26.50													
Wearwell Non-Skid	q13.15	q12.80		q16.60	q17.55	q19.45				q25.45	q26.00	27.15	q27.85													
Wearwell Gray Tubes	3.10	3.05		3.75	3.80	3.85				4.75	4.85	5.00	5.15	5.80	5.50			6.25	6.45	6.65	6.90	7.80	8.60	8.10	9.25	
Wearwell Red Tubes	3.40	3.35		4.20	4.25	4.30				5.30	5.40	5.55	5.70	6.45	6.10			7.00	7.15	7.35	7.65	8.70	9.50	8.95	10.30	
Wilson Non-Skid										qc49.25		qc53.90							qc65.45		qc67.75	cs78.75		c82.55	qc90.00	
Wilson Gray Tubes	3.40	3.35		4.20	4.25	4.30				5.30	5.40	5.55	5.70	6.45	6.15			7.00	7.15	7.35	7.60	8.50	8.70	8.85	9.40	
Wilson Red Tubes	3.70	3.65		4.80	4.85	4.90				6.00	6.05	6.10	6.20	7.09	6.79			7.70	7.85	8.05	8.35	9.35	9.55	9.75	10.40	
WOODWORTH Plain	23.90	25.30		32.60	33.25	36.30	39.90			46.85	47.90	49.90	51.00		53.95	61.15		65.00	66.20	68.75	70.90	81.50	82.40	85.80		
Non-Skid	25.75	27.90		34.90	36.45	38.80	43.95			49.90	53.40	55.25	56.80		59.80	64.15		68.75	70.10	73.35	74.80	85.75	86.70	90.10		
Tubes	3.90	4.00		4.40	4.55	4.65	4.95			6.35	6.60	6.70	6.80	6.90	7.10			8.65	8.90	9.20	9.40	10.00	10.35	10.55		
ZEE-ZEE "Z" Tread		18.82		21.67		24.12				32.83	34.37	35.61	36.39	37.71	38.89	47.52	48.42	49.33	50.09	52.04	53.70	56.22	57.95	58.86	72.90	78.26
Tubes	3.81	4.11	4.35	4.71	4.83	4.93	5.05		6.04	6.16	6.28	6.57	6.80	6.89	7.06	8.10	8.29	8.41	8.45	8.59	8.95	10.67	10.76	11.23	12.44	13.04
Climax		10.50		11.70	12.50	13.25				14.25	15.25	16.45	17.40													
Zee-Zee		14.10		18.25	19.30	21.40				28.00	28.60	29.85	30.65			38.90	40.10	41.30	43.10	43.90	44.60	49.25	52.15			

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

These Tables are for your constant consultation and should be of great value in the conduct of your business—

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Tires and Tubes

MOTOR WORLD GUIDE

Tires and Tubes

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
ACME	Plain	16.00	17.20	s18.10	23.00	s23.90	24.40	25.80	s27.50	s30.80	s31.90	33.20	34.30	35.50	36.70	38.00	s45.30	46.70	48.30	49.60	51.10	52 60	57.70	59.50	61.40	s76.80	s78.90
	Kam Tread	.....	s17.90	.....	s24.20	s25.10	25.60	.....	.....	.....	s33.50	35.00	36.10	37.40	.....	.....	.....	qc49.00	50.70	52.10	53.70	55.30	60.60	62.60	64.30	.....	.....
	Dimple	18.40	19.60	s21.00	26.40	s27.40	28.00	29.80	s31.60	s35.40	s36.70	38.30	39.60	40.90	42.20	43.70	s52.10	53.70	55.50	57.10	58.80	60.50	66.30	68.50	70.50	s88.30	s90.70
	Hemisphere	20.20	s21.60	.....	29.00	.....	30.80	32.70	.....	.....	s40.50	qc42.10	43.60	44.90	46.40	s48.10	.....	.....	qc61.00	62.80	64.70	66.50	s73.00	s75.20	77.70	.....	.....
	Gray and Red Tubes	3.65	3.85	4.15	4.95	5.15	5.45	5.85	6.05	6.05	6.25	6.40	6.65	6.75	6.95	7.15	8.15	8.35	8.45	8.60	8.80	9.05	10.00	10.30	10.55	11.20	11.50
ADVANCE	Plain	s12.75	s13.40	.....	s17.45	s18.35	20.40	s23.80	.....	.....	s26.75	27.25	28.55	29.15	30.15	31.05	.....	s38.05	s39.25	41.10	41.75	43.45	.....	s46.90	s49.65	s74.55	.....
	Non-Skid	s13.35	s14.10	.....	s18.25	s19.30	21.40	s24.95	.....	.....	s28.00	28.60	29.85	30.65	31.50	32.60	.....	s39.95	s41.30	43.10	43.90	45.60	.....	s49.20	s52.15	s78.20	.....
AJAX	Plain	s13.65	s14.45	s18.75	18.60	s19.50	22.55	26.95	28.85	s28.95	30.25	30.80	32.10	32.65	34.10	34.55	.....	.....	43.90	45.55	46.10	47.80	s52.45	52.50	54.45	.....	.....
	Non-Skid	s15.30	s16.10	s.....	s21.35	s22.20	25.30	29.70	.....	s32.25	33.55	34.10	35.40	35.95	37.40	37.85	qc46.10	qc52.45	48.30	49.95	50.50	52.20	56.85	s56.90	58.85	s78.35	s79.30
	Road King	s14.70	s15.55	.....	s19.95	s20.95	24.25	.....	.....	.....	32.50	33.10	34.55	35.10	.....	37.10	.....	48.40	48.95	51.20	52.05	53.90	61.15	s61.40	63.25	.....	.....
	Gray Tubes	3.20	3.00	3.40	3.75	3.85	4.00	4.30	4.50	4.75	4.85	5.05	5.25	5.35	5.50	5.70	6.15	6.35	6.50	6.60	6.85	7.00	8.40	8.50	8.60	9.20	9.35
	Red Tubes	3.50	3.75	4.00	4.60	4.75	4.90	5.15	5.40	5.75	5.90	6.05	6.25	6.35	6.50	6.70	7.60	7.80	8.05	8.30	8.50	8.75	9.90	10.00	10.15	10.85	11.05
AMAZON	Ribbed	.....	qs16.75	.....	qs21.70	.....	qc25.05	.....	.....	.....	.....	qc33.90	qc36.30	qc36.90	.....	.....	.....	.....	qc49.20	qc51.45	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs16.70	qs17.65	.....	qs22.85	.....	qc26.35	.....	.....	.....	qs34.75	qc35.70	c38.20	c38.85	.....	.....	.....	qc50.35	c51.80	c54.15	c54.90	qc57.45	c64.75	.....	c66.95	.....	.....
	Red-Gray Tubes	3.15	3.50	.....	4.10	.....	4.25	4.50	.....	.....	5.70	5.90	6.15	6.25	6.40	6.50	.....	7.20	7.30	7.45	7.65	7.95	8.55	9.00	9.10	9.25	10.50
AMERICAN	Ribbed or Plain	15.00	16.00	.....	20.45	22.10	24.05	.....	.....	.....	32.30	33.00	34.70	35.45	.....	.....	.....	.....	47.40	49.60	50.30	.....	58.35	.....	61.90	.....	.....
	Triple A Non-Skid	15.80	16.80	.....	21.35	23.00	24.95	.....	.....	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	53.65	59.40	60.30	62.95	.....	.....
	Seal Brown Tubes	3.00	3.25	.....	3.75	3.80	3.85	4.20	.....	.....	4.65	4.80	5.00	5.15	.....	5.60	6.20	6.25	6.30	6.40	6.55	6.70	7.65	7.75	7.90	9.35	9.50
	Red Indian Tubes	3.25	3.50	.....	4.20	4.25	4.30	4.60	.....	.....	5.40	5.50	5.70	5.80	6.00	6.15	6.95	7.00	7.10	7.20	7.35	7.65	8.60	8.85	8.95	10.20	10.40
ARABIAN	Fluted Tread	.....	qs15.60	.....	qs20.05	.....	24.45	.....	.....	.....	s31.05	.....	32.80	33.00	.....	36.05	.....	.....	qc43.45	s46.75	48.45	49.05	.....	.....	54.40	.....	.....
	Non-Skid	.....	qs16.40	.....	qs21.10	.....	25.65	.....	.....	.....	32.65	qc33.90	34.45	34.65	.....	38.95	.....	.....	qc45.60	49.05	50.80	51.50	.....	.....	57.10	.....	.....
	Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
ARCADIA	Plain	qs14.00	qs15.20	.....	s19.60	.....	22.25	27.85	.....	qs32.70	s29.80	30.40	31.65	32.60	37.60	34.55	.....	.....	43.40	45.25	45.95	47.90	53.25	s59.15	56.00	s99.75	s103.25
	Non-Skid	.....	qs15.95	.....	s20.60	.....	23.45	29.15	.....	qs34.40	31.45	31.90	33.35	34.25	39.45	36.45	.....	.....	45.70	47.45	48.25	50.25	55.75	s62.40	58.95	s105.00	s108.50
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
ARCHER	Ribbed Tread	.....	.....	.....	.....	.....	qc35.90	.....	.....	.....	.....	qc45.15	qc46.30	qc47.50	.....	qc49.90	.....	qc51.90	qc53.25	qc54.55	qc55.80	.....	qc65.85	qc67.55	qc68.90	.....	qc83.15
	Non-Skid	.....	.....	.....	.....	.....	qc37.80	.....	.....	.....	.....	qc47.10	qc48.25	qc49.45	.....	qc51.80	.....	qc53.85	qc55.20	qc56.45	qc57.70	qc58.95	qc67.80	qc69.50	qc70.80	.....	qc85.10
	Gray Tubes	.....	3.15	.....	3.25	.....	3.40	.....	.....	.....	.....	4.60	4.75	4.85	.....	5.10	.....	6.00	6.05	6.15	6.25	6.35	7.35	7.50	7.65	.....	8.50
	Red Tubes	.....	4.15	.....	4.25	.....	4.40	.....	.....	.....	.....	6.00	6.15	6.30	.....	6.55	.....	7.80	7.85	8.00	8.15	8.20	9.55	9.75	9.95	.....	10.80
ARMSTRONG	Red Tubes	.....	4.00	4.50	4.75	.....	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.60	9.45	9.60	9.75	11.60	11.75
	Plain	.....	19.00	.....	23.75	.....	27.00	31.25	.....	.....	37.00	38.00	40.00	40.50	44.50	42.00	.....	.....	54.50	57.00	60.50	.....	66.00	73.00	68.50	.....	.....
	Non-Skid	.....	21.25	.....	26.00	.....	31.00	34.25	.....	.....	40.75	42.00	43.00	43.50	48.75	46.00	.....	.....	59.50	62.50	66.50	.....	72.50	80.00	74.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	40.05	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	45.10	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
BALTIMORE	Concord	20.17	20.64	.....	25.07	o 27.80	29.50	32.07	.....	.....	o 34.45	35.44	o 36.72	38.02	o 39.47	40.75	.....	45.72	47.23	o 48.68	51.36	o 52.77	o 59.59	62.45	o 65.12	o 86.21	93.51
	Box Tread	22.19	23.27	.....	29.10	o 30.03	33.22	36.08	.....	.....	o 40.15	41.47	o 42.68	44.22	o 45.65	48.18	.....	50.00	51.81	o 54.89	59.62	o 60.83	o 67.76	70.40	o 72.05	o 89.65	104.28
	Tubes	3.25	3.34	.....	4.30	4.45	4.60	4.95	.....	.....	5.45	5.55	5.75	5.95	6.05	6.20	.....	7.25	7.45	7.60	7.85	8.10	8.90	9.15	9.45	.....	11.05
	Wil-Lox Non-Skid	.....	qs14.10	.....	qs18.25	qs19.30	q21.40	.....	.....	.....	qs28.00	.....	qc29.85	qc30.65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
BATAVIA	Plain	.....	qs14.35	.....	qs18.25	.....	qc21.35	.....	.....	.....	.....	qc29.05	qc30.45	qc31.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ribbed	.....	.....	.....	.....	.....	c23.70	c26.90	.....	.....	.....	qc32.30	c33.90	c34.60	qc36.20	cs36.75	cs43.15	qc44.55	c46.00	c48.10	c48.75	cs50.95	c56.40	.....	c59.80	.....	.....
	Security Tread	qs14.40	qs16.80	.....	qs21.35	qs23.00	c24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	cs45.45	qc46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	cs97.25	cs99.00
	Gray Tubes	2.95	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	9.20	9.45
BERGOUGNAN	Plain	s14.85	s17.70	.....	s21.60	s22.85	25.20	s27.85	.....	35.25	s30.90	32.85	35.20	37.20	s38.00	s40.00	s46 55	47.60	50.35	50.95	51.45	s53.05	59.45	60.70	62.35	s80.40	83.10
	Non-Skid	s16.70	s18.10	.....	s25.20	s26.30	27.55	s29.55	.....	39.65	s34.90	36.50	39.30	40.75	s42.65	s43.70	s52.20	52.90	53.85	55.05	56.70	s59.10	65.15	68.15	69.65	88.75	91.80
	Red Tubes	3.75	3.80	.....	4.45	4.80	4.85	5.20	.....	6.60	6.05	6.25	6.60	6.75	6.95	7.15	7.35	8.10	8.20	8.30	8.65	8.90	9.70	10.00	10.15	11.15	11.20
BESAW	Blackford Non-Skid	.....	qs15.70	.....	qs19.95	qs21.35	c23.60	.....	.....	.....	qs31.50	qc32.05	qc33.90	34.5	.....	.....	.....	.....	.....	cs48.60	.....	.....	.....	.....	.....	.....	.....
	BeSaw Non-Skid	.....	24.25	.....	30.30	31.35	35.05	38.00	.....	.....	42.30	43.70	45.00	46.55	48.10	50.75	.....	.....	54.60	57.90	62.75	64.10	71.35	74.15	75.90	.....	.....
	BeSaw Plain	.....	20.50	.....	24.90	27.65	29.30	31.80	.....	.....	34.30	35.55	36.90	38.15	39.30	40.50	.....	.....	46.95	48.40	49.70	51.10	57.80	59.40	60.90	.....	.....
BOONE	Smooth	.....	14.20	.....	18.15	19.40	21.10	.....	.....	.....	28.25	28.95	30.15	30.95	.....	33.10	38.85	.....	41.35	43.30	43.95	.....	50.75	.....	53.80	.....	.....
	Ribbed Non-Skid	.....	15.60	.....	19.95	21.34	23.21	.....	.....	.....	31.10	31.85	33.15	34.05	.....	36.40	42.70	.....	45.50	47.60	48.45	.....	55.80	.....	59.30	.....	.....
	Special Non-Skid	.....	18.50	.....	23.50	25.30	27.45	.....	.....	.....	36.65	37.40	39.25	40.10	.....	42.55	50.00	.....	53.25	55.60	56.50	.....	65.35	.....	69.25	.....	.....
	Black Tubes	.....	3.40	.....	3.80	4.00	4.20	.....	.....	.....	5.40	5.55	5.75	5.90	.....	6.15	7.15	.....	7.30	7.40	7.60	.....	8.90	.....	9.25	.....	.....
	Red Tubes	.....	3.95	.....	4.50	4.70	4.95	.....	.....	.....	6.40	6.60	6.75	6.95	.....	7.20	8.40	.....	8.65	8.80	8.95	.....	10.50	.....	10.95	.....	.....
	Gray Tubes	.....	3.05	.....	3.45	3.65	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	5.55	6.50	.....	6.65	6.75	6.90	.....	8.10	.....	8.40	.....	.....
BOWERS	Plain	16.85	17.85	.....	24.00	25.50	26.95	28.80	.....	.....	33.50	35.45	37.25	38.20	39.05	40.95	.....	.....	47.50	49.40	51.26	.....	61.55	63.00	64.35	.....	90.85
	Grip Tread	18.70	19.65	.....	28.30	29.70	31.70	34.55	.....	.....	37.30	38.80	40.05	41.90	42.90	43.90	.....	.....	51.25	53.15	56.00	.....	67.20	69.65	71.85	.....	103.40
	Gray Tubes	3.30	3.80	.....	4.10	4.35	4.60	4.85	.....	.....	5.95	6.10	6.40	6.50	6.60	6.75	.....	.....	7.70	8.10	8.40	.....	9.50	9.70	10.00	.....	11.75

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
BRAENDER	Plain	qs13.95	qs14.30	qs18.10	q18.35	qs19.15	q21.30	q24.05	qs30.00	qs27.65	q28.20	q28.70	q30.15	q30.80	q32.65	q31.90	41.25	40.05	41.35	43.25	43.95	44.60	49.40	55.90	53.35	qs82.95	qs87.75
	Non-Skid	qs16.20	qs16.45	qs21.00	q21.30	qs22.20	q24.70	q27.00	qs34.80	qs32.05	q32.75	q33.35	q35.00	q35.75	q37.90	q37.00	47.75	46.40	47.95	50.15	51.00	51.75	57.30	64.80	61.90	qs96.20	cs101.75
	Gray Tubes	3.25	3.40	3.60	4.15	4.25	4.40	4.50	5.30	5.30	5.40	5.65	5.75	5.85	6.10	6.30	7.00	7.10	7.20	7.35	7.55	7.90	8.90	9.05	9.15	10.00	10.25
	Red Tubes	3.60	3.70	4.00	4.60	4.70	4.80	5.00	6.00	5.90	6.00	6.20	6.40	6.60	6.80	7.00	7.80	7.90	8.10	8.20	8.40	8.70	9.80	10.00	10.20	11.00	11.20
BRUNSWICK	Plain	13.30	qs14.35	.....	qs18.25	s19.60	21.35	c24.20	.....	.....	qs28.45	c29.05	c30.45	c31.20	c32.60	c33.10	c38.85	c40.05	c41.35	c43.30	c43.95	c45.80	c50.75	c51.55	c53.80	s83.10	c92.45
	Skid Not	15.60	qs16.80	.....	qs21.35	qs23.00	24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	c45.45	c46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	s103.90	c113.00
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	4.10	.....	.....	4.70	4.85	5.05	5.20	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
	Ribbed Tread	.....	qs15.95	.....	qs20.30	.....	qc2370	.....	.....	.....	qs31.65	qc32.30	qc33.90	qc34.65	.....	.....	qc43.20	qc44.55	qc46.00	qc48.05	qc48.80	.....	c56.45	.....	c59.80	.....	.....
BULL	Plain	qs13.50	qs14.00	.....	qs17.90	qs19.55	21.10	c23.80	.....	.....	qs27.85	q28.35	c30.00	c30.45	c31.65	cs37.90	.....	.....	cs41.75	c43.25	c43.95	cs53.75	c50.90	cs51.75	c53.65	.....	.....
	Non-Skid	qs15.15	qs15.70	.....	qs19.95	qs21.35	23.60	c26.95	.....	.....	qs31.50	q32.05	c33.90	c34.50	c36.30	cs43.40	.....	.....	cs46.75	c48.60	c49.15	cs60.00	c59.95	cs61.05	c63.10	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	*5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CAPITOL	Plain	qs13.90	qs13.65	.....	qs17.90	qs18.60	20.80	24.15	.....	c29.00	qs27.15	c27.95	29.15	c29.70	c33.70	c31.75	.....	.....	c39.75	c41.70	c42.35	c43.60	c47.70	cs53.15	c50.50	.....	.....
	Non-Skid	qs14.85	qs14.30	.....	qs18.35	qs19.70	21.75	25.80	.....	c30.20	qs28.50	c29.20	30.40	c31.25	c35.35	c33.10	.....	.....	c42.00	c43.55	c44.45	c46.05	c50.05	cs56.55	c52.95	.....	.....
	Redman Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Paragum Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
CARLISLE	Lightning Tread	.....	.....	.....	.....	.....	qc38.50	.....	.....	.....	.....	qc48.75	c50.25	qc51.50	.....	.....	c55.00	qc56.50	c58.00	c59.25	c60.75	.....	c72.00	.....	c75.50	.....	cs91.50
CARSPRING	Plain	qs18.20	qs19.55	.....	s25.30	.....	29.15	36.30	.....	qs36.75	s35.20	36.00	37.70	38.50	44.55	41.00	.....	.....	51.40	53.70	54.45	56.65	62.50	s69.85	66.25	s102.85	s105.60
	"C" Tread	.....	qs20.45	.....	s26.50	.....	30.55	38.25	.....	qs38.50	s36.95	37.75	39.60	40.50	46.75	43.15	.....	.....	53.90	56.25	57.15	59.50	65.70	s73.70	69.55	s108.35	s111.00
	Suction Tread	.....	.....	.....	s29.75	.....	34.25	42.90	.....	qs42.70	s41.40	42.30	44.25	45.35	52.25	48.20	.....	.....	60.35	63.00	64.10	66.75	73.50	s82.50	77.80	s121.00	s124.30
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
CENTURY-PLAINFIELD	Plain	.....	qs19.50	.....	qs26.00	qs27.50	30.50	.....	.....	.....	s36.00	38.00	39.00	40.00	41.00	43.75	s47.00	qc47.25	49.00	50.35	54.15	55.00	61.75	64.50	65.50	s82.00	s87.00
	Non-Skid	.....	qs21.50	.....	27.50	29.00	32.00	.....	.....	.....	s38.00	40.00	41.00	42.00	43.00	45.00	s48.50	qc49.75	50.00	53.00	57.00	58.00	65.00	68.00	69.00	s86.00	s91.00
	Superbar	.....	16.30	.....	qs21.50	qs22.50	c21.85	.....	.....	.....	qs28.00	c28.60	c29.85	c30.65	c35.00	.....	.....	.....	c41.30	c43.10	43.90	.....	49.20	55.70	52.15	.....	.....
	Tubes	3.45	3.55	3.80	4.55	4.70	4.90	5.25	5.55	5.65	5.75	5.85	6.10	6.30	6.35	6.55	7.35	.....	7.90	8.05	8.35	8.60	9.45	9.65	10.00	.....	11.65
CHAMPION*	Non-Skid	14.45	14.10	.....	18.25	.....	21.40	23.80	.....	.....	28.00	28.60	29.85	30.65	.....	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Champion Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	4.55	.....	.....	4.75	4.85	5.00	5.15	5.80	6.00	.....	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tube	3.40	3.70	.....	4.05	4.30	4.40	4.60	.....	.....	5.50	5.65	5.95	6.10	6.25	6.50	.....	7.45	7.50	7.70	7.80	3.05	9.15	9.30	9.40	.....	.....
CHESTER	Plain	s13.50	s14.00	s18.25	s17.90	s19.55	21.10	23.80	s30.00	s31.90	s27.85	28.35	30.00	30.45	s31.65	s37.90	.....	.....	s41.75	43.25	43.95	s53.75	50.90	s51.75	53.65	.....	.....
	Non-Skid	s15.15	s15.70	s20.75	s19.95	s21.35	23.60	26.95	s34.20	s37.50	s31.50	32.05	33.90	34.50	s36.30	s43.40	.....	.....	s46.75	48.60	49.15	s60.00	59.95	s61.05	63.10	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CLEVELAND-STANDARD	Plain	19.80	20.50	.....	25.30	26.80	28.15	31.90	.....	34.10	34.50	35.65	37.40	38.50	39.60	40.70	.....	47.55	47.95	48.80	50.15	51.45	58.30	60.00	61.60	79.20	88.00
	Non-Skid	20.90	23.60	.....	29.90	31.90	34.75	36.30	.....	39.15	40.00	40.90	41.80	42.90	44.20	45.50	49.50	51.05	51.90	53.25	56.10	58.10	64.20	67.75	69.75	90.80	96.80
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.20	5.40	5.85	5.95	6.15	6.30	6.45	6.90	6.95	7.80	7.90	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
	Gray Tubes	3.40	3.50	3.75	4.30	4.40	4.50	5.00	5.20	5.35	5.50	5.65	5.80	6.00	6.20	6.40	7.15	7.25	7.40	7.50	7.70	8.00	8.90	9.10	9.20	10.55	10.75
COLUMBIA	Plain	13.80	14.20	17.30	18.45	19.45	21.50	27.90	.....	29.85	28.25	28.80	30.10	30.80	37.20	32.85	.....	.....	41.60	43.45	44.15	45.90	49.55	57.85	52.55	.....	.....
	Non-Skid	14.50	14.95	.....	19.35	20.35	22.45	29.25	.....	.....	29.65	30.20	31.65	32.40	39.00	34.50	.....	.....	43.65	45.65	46.35	48.25	52.05	60.75	55.20	.....	.....
	Gray Tubes	2.95	3.00	3.40	3.75	3.80	3.85	4.55	.....	4.95	4.75	4.85	5.00	5.15	5.75	5.50	.....	.....	6.25	6.45	6.65	6.85	7.80	8.60	8.10	.....	.....
	Red Tubes	3.30	3.35	3.80	4.20	4.25	4.30	5.05	.....	5.50	5.30	5.40	5.55	5.70	6.45	6.10	.....	.....	7.00	7.15	7.35	7.65	8.70	9.50	8.95	.....	.....
COMBINATION	Plain	qs12.75	qs13.70	.....	qs17.85	qs18.85	20.55	q23.25	.....	.....	qs27.35	27.85	29.20	29.85	31.30	31.80	39.20	.....	39.75	41.50	42.20	43.90	s46.40	47.15	49.10	.....	cs70.25
	Hold-on Non-Skid	qs15.05	qs16.05	.....	qs20.55	qs21.55	23.70	q26.85	.....	.....	qs31.35	32.00	33.65	34.26	35.90	36.25	44.15	.....	46.75	48.85	49.60	51.60	s57.25	58.10	60.60	.....	cs84.30
	Gray Tubes	3.00	3.15	.....	3.75	3.80	3.90	4.15	.....	.....	5.00	5.25	5.35	5.50	5.65	5.90	6.55	.....	6.75	6.95	7.15	7.25	8.15	8.40	8.55	.....	9.10
	Red Tubes	3.30	3.45	.....	4.15	4.20	4.35	4.65	.....	.....	5.50	5.85	5.95	6.10	6.20	6.50	7.20	.....	7.50	7.75	8.00	8.10	9.15	9.30	9.45	.....	10.05
COMPRESSION	Patented Tube	14.00	15.00	.....	16.00	17.00	18.00	19.00	.....	.....	20.00	21.00	22.00	23.00	24.00	25.00	.....	26.00	27.00	28.00	29.00	30.00	32.00	33.00	34.00	.....	.....
CONVERSE	Rough Tread	.....	.....	.....	qs28.10	qs32.90	36.10	.....	.....	.....	43.05	44.40	45.95	47.60	48.80	50.15	qc52.45	qc54.05	55.65	58.60	63.00	64.80	72.00	74.85	77.35	.....	.....
	Smooth Tread	.....	qs21.20	.....	qs27.30	qs30.10	31.75	.....	.....	.....	36.75	38.10	39.50	40.90	42.10	43.45	qc47.25	qc48.70	50.25	51.85	53.25	54.70	61.65	63.65	65.25	.....	.....
	Gray Tubes	.....	3.30	3.90	4.10	4.20	4.35	5.15	.....	.....	5.35	5.50	5.55	5.80	6.55	6.75	6.85	6.95	7.10	7.25	7.50	8.50	8.80	9.70	9.10	10.40	10.60
	Red Tubes	.....	3.75	4.25	4.65	4.70	4.85	5.70	.....	.....	5.85	6.15	6.20	6.45	7.25	7.45	7.65	7.75	7.90	8.05	8.30	9.40	9.75	10.70	11.20	11.50	11.90
CORTLAND	C. C. Plain	.....	s14.10	.....	s18.35	.....	s21.45	s23.75	.....	.....	s28.15	28.70	30.05	30.70	s31.50	s32.30	s38.95	s40.05	41.30	43.25	43.95	s44.75	49.35	s50.85	52.25	s68.75	s70.85
	C. C. Non-Skid	.....	s14.85	.....	s19.20	.....	22.50	s24.90	.....	.....	s29.45	30.10	31.40	32.25	s32.90	s33.25	s40.95	s42.05	43.45	45.35	46.20	s45.80	51.85	s52.90	54.90	s71.50	s74.50
	Yankee Plain	.....	s19.65	.....	s24.10	.....	27.70	s29.90	.....	.....	s35.65	37.60	38.50	39.50	s40.50	s41.50	s46.50	s47.55	48.50	51.10	54.90	s57.42	65.15	s66.85	68.85	s81.45	s83.25
	Yankee Non-Skid	.....	s21.80	.....	s26.75	.....	30.75	s33.15	.....	.....	s39.60	41.75	42.80	43.85	s44.95	s46.00	s51.70	s52.80	53.90	56.75	61.00	s63.80	72.35	s74.25	76.50	s90.50	s92.50
CUPPLES	Rough Tread	.....	qs18.00	.....	qs25.00	.....	qc30.00	.....	.....	.....	qs37.00	qs39.00	qc40.00	c41.00	.....	.....	.....	qc48.00	qc49.00	qc52.00	c56.00	.....	c63.00	.....	cs67.00	.....	.....
	Red Tubes	.....	3.95	.....	4.75	.....	4.95	.....	.....	.....	6.40	6.60	6.75	6.95	.....	.....	.....	8.40	8.65	8.80	8.95	.....	10.50	.....	10.95	.....	.....
	Rhinos Inner Tubes	.....	7.90	.....	9.50	.....	9.90	.....	.....	.....	12.80	13.20	13.50	13.90	.....	.....	.....	16.80	17.30	17.60	17.90	.....	21.00	.....	21.90	.....	.....
CURTIS	Plain	18.20	18.50	.....	24.70	.....	27.60	.....	.....	.....	32.25	33.45	34.65	35.85	.....	38.10	.....	.....	44.15	45.50	46.75	48.00	54.30	55.80	57.30	.....	.....
	Suction	20.70	20.90	.....	27.25	.....	33.00	.....	.....	.....	39.75	41.15	42.35	43.90	.....	46.20	.....	.....	51.30	52.90	57.40	59.10	65.25	66.60	71.30	.....	.....
	Gray Tubes	3.35	3.45	.....	4.00	.....	4.15	.....	.....	.....	5.40	5.65	5.80	5.90	.....	6.15	.....	.....	7.35	7.55	7.75	8.00	9.00	9.30	9.40	.....	.....
	Red Tubes	3.65	3.85	.....	4.45	.....	4.55	.....	.....	.....	6.05	6.20	6.45	6.55	.....	6.80	.....	.....	8.15	8.30	8.65	8.80	9.90	10.20	10.80	.....	.....
DAYTON	Plain	qs21.65	qs20.70	.....	qs25.20	qs27.95	29.65	.....	.....	s44.70	qs34.75	qc36.05	37.40	38.70	s39.85	41.10	s55.95	.....	47.70	49.15	50.50	51.85	s58.70	s60.40	61.90	s80.80	s92.85
	Non-Skid	qs26.30	qs24.75	.....	qs31.05	qs32.05	35.45	.....	.....	.....	qs42.90	qc44.30	45.65	47.25	s48.80	51.55	.....	.....	55.40	58.75	63.80	65.15	s72.60	s75.40	77.20	s96.10	s111.80
	Red Tubes	3.65	3.75	.....	4.80	4.95	5.15	.....	.....	5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80	.....	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
DEFIANCE	Plain	qs13.00	qs13.15	.....	17.45	s17.70	21.30	22.55	.....	.....	s26.95	27.70	28.55	29.15	29.95	31.10	.....	.....	29.05	41.50	42.00	43.75	.....	cs47.85	c49.65	.....	.....
	Tiger Tread	qs14.35	qs14.60	.....	19.20	s19.80	22.85	25.05	.....	.....	s29.05	31.08	31.55	32.85	33.28	33.70	.....	.....	42.25	45.70	47.25	48.45	.....	cs51.15	c54.45	.....	.....
	Gray Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
	Red Tubes	3.15	3.45	.....	3.90	3.95	4.00	4.50	.....	4.95	5.00	5.40	5.55	5.70	5.85	6.10	.....	.....	7.10	7.25	7.40	7.65	.....	8.20	8.30	.....	.....
	Double Wall Tubes	4.13	4.20	.....	4.97	5.11	5.32	5.88	.....	.....	6.65	6.86	7.14	7.35	7.77	7.70	.....	.....	9.03	9.21	9.59	9.85	.....	11.55	11.48	.....	.....
DELION	Plain	16.10	18.00	19.40	22.80	24.15	26.45	28.00	33.15	35.55	31.15	33.15	35.45	37.45	38.35	40.35	46.90	48.00	50.75	51.37	51.90	53.45	59.90	61.20	62.85	80.95	83.80
	Non-Skid	18.00	19.35	21.00	26.45	27.60	29.00	29.75	39.35	40.00	35.20	36.85	39.65	40.95	42.90	44.05	52.25	53.35	54.30	55.55	57.25	59.60	65.70	67.60	70.25	89.35	92.65
	Red Tubes	3.50	3.50	3.90	4.15	4.45	4.55	4.85	5.10	6.10	5.60	5.80	6.10	6.25	6.40	6.60	7.40	7.50	7.60	7.75	8.00	8.20	9.00	9.25	9.45	10.25	10.50
DIAMOND	Smooth	14.50	14.10	18.90	18.35	19.30	21.45	25.05	26.65	29.85	28.15	28.70	30.05	30.70	35.05	36.00	38.95	40.05	41.30	43.25	43.95	50.30	49.35	55.90	52.25	78.45	70.85
	Squeegee	15.20	14.85	19.80	19.20	20.30	22.50	26.25	27.90	31.25	29.45	30.10	31.40	32.25	36.85	37.80	40.95	42.05	43.45	45.35	46.20	52.85	51.85	58.65	54.90	82.30	74.40
	Gray Tubes	3.25	3.20	3.60	3.95	4.00	4.05	4.80	5.05	5.20	5.00	5.10	5.25	5.40	6.10	6.30	6.25	6.45	6.60	6.80	7.00	8.00	8.20	9.05	8.55	9.75	9.95
	Red Tubes	3.55	3.50	4.00	4.40	4.45	4.50	5.30	5.65	5.80	5.60	5.70	5.85	6.00	6.80	6.95	6.95	7.15	7.35	7.50	7.75	8.80	9.15	10.00	9.40	10.85	11.05
DOUBLE FABRIC	Xtra-Ply	16.35	qs17.45	.....	qs22.65	qs24.40	c26.70	.....	.....	.....	qs32.90	qc35.50	c37.30	c38.10	.....	c40.55	.....	.....	c48.15	c49.90	c51.50	c53.95	c63.20	.....	c66.85	.....	.....
	Duo-Cord	.....	qs21.45	.....	qs27.95	.....	c32.10	.....	.....	.....	.....	qc43.35	c44.70	c46.05	.....	.....	c54.35	c56.05	c57.85	59.50	.....	.....	c71.75	.....	c75.80	.....	.....
	Brazil Gray Tubes	3.15	3.35	.....	3.80	3.85	4.05	4.15	4.35	.....	5.15	5.35	5.45	5.55	5.80	5.90	6.85	6.95	7.05	7.15	7.25	7.35	8.55	8.65	8.85	9.35	.....
DREADNAUGHT	Vacuum Red	.....	qs18.85	.....	qs23.70	qs24.90	c28.50	.....	.....	.....	qs34.70	c35.30	c37.10	c37.90	.....	cs39.95	.....	qc48.55	c49.20	c51.45	c52.25	cs54.65	c60.05	cs61.25	c63.50	.....	.....
	Ribbed Tread	.....	qs16.75	.....	qs21.70	qs22.95	c25.15	.....	.....	.....	qs30.20	c31.35	c32.55	c32.95	.....	cs36.20	.....	qc42.65	c43.85	c45.80	c46.55	cs48.95	c51.25	cs52.00	c54.30	.....	.....
	Super-Dreadnaught Red Tubes	.....	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	10.45	10.80
DRY CLIMATE	Plain	.....	14.35	.....	18.25	19.60	21.35	24.20	.....	.....	28.45	29.05	30.45	31.20	32.60	33.10	38.85	40.05	41.35	43.30	43.95	45.80	50.75	51.55	53.80	.....	.....
	Non-Skid	.....	16.80	.....	21.35	23.00	24.95	28.35	.....	.....	33.30	34.00	35.70	36.45	38.10	38.70	45.45	46.90	48.40	50.60	51.35	53.65	59.40	60.30	62.95	.....	.....
	Red Tubes	.....	3.95	4.10	4.50	4.60	4.95	5.35	5.60	5.75	6.40	6.60	6.75	6.95	7.05	7.20	8.40	8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95	.....	.....
	Gray Tubes	.....	3.05	3.15	3.45	3.65	3.80	4.45	4.50	4.55	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	.....	.....
DUNLOP	Cross Groove	.....	22.95	.....	28.55	30.20	32.15	34.60	36.50	.....	38.55	42.10	44.30	46.40	48.60	51.30	52.35	53.35	54.35	57.70	58.30	60.40	64.35	67.05	69.70	78.50	.....
	Traction Non-Skid	.....	25.00	.....	33.80	35.55	36.75	39.40	42.50	.....	46.25	50.10	53.05	55.50	57.70	59.55	60.15	62.25	64.35	66.45	68.65	70.75	79.50	83.00	84.40	92.35	97.90
	Tubes	4.80	4.85	.....	6.15	6.25	6.40	7.20	7.50	.....	7.70	8.00	8.25	8.55	9.05	9.05	10.45	10.45	10.70	10.95	11.20	11.50	12.90	13.35	13.35	14.75	15.15
DUPLEX	Plain	13.65	14.55	15.60	18.95	19.55	19.55	21.95	.....	29.70	30.90	30.90	31.95	34.20	35.25	36.35	42.60	44.05	45.45	46.95	48.40	49.75	56.90	58.50	60.15	70.35	72.15
	Non-Skid	19.45	21.00	22.75	27.85	28.85	29.40	30.35	.....	38.40	39.55	41.25	42.70	44.05	46.70	46.15	52.95	53.05	54.70	56.45	58.05	59.75	67.20	68.50	69.60	89.25	92.50
	Red Tubes	3.60	3.85	4.10	5.15	5.30	5.45	5.75	.....	7.25	7.60	7.75	8.05	8.20	8.50	8.70	9.65	9.80	10.05	10.35	10.60	11.00	12.25	12.50	12.95	14.55	14.90
DURAL	Red Tubes	3.65	3.75	4.20	4.55	4.70	4.85	5.10	5.45	6.15	6.05	6.20	6.50	6.75	6.95	7.10	8.40	7.85	8.05	8.25	8.45	8.65	9.50	9.75	9.90	.....	.....
	Gray Tubes	2.95	3.00	3.30	3.40	3.55	3.70	3.90	4.30	4.85	4.55	4.80	5.00	5.15	5.30	5.40	6.60	6.30	6.40	6.60	6.85	7.00	7.60	7.80	8.05	.....	.....
EHMAN	Plain	13.80	13.40	.....	17.45	18.35	20.40	23.80	.....	.....	26.75	27.25	28.55	29.15	33.30	34.20	.....	38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65	.....	.....
	Track Tread	14.45	14.10	.....	18.25	19.30	21.40	24.95	.....	.....	28.00	28.60	29.85	30.65	35.00	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Non-Skid Worm Drive Tread	14.45	14.10	.....	18.25	19.30	21.40	24.95	.....	.....	28.00	28.60	29.85	30.65	35.00	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Non-Skid Wrapped Tread	15.15	14.80	.....	19.15	20.25	22.47	26.20	.....	.....	29.40	30.05	31.35	32.20	36.75	37.70	.....	41.95	43.35	45.25	46.10	52.70	51.70	58.50	54.75	.....	.....
	Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	4.55	.....	.....	4.75	4.85	5.00	5.15	5.80	6.00	.....	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tubes	3.40	3.35	.....	4.20	4.25	4.30	5.05	.....	.....	5.30	5.40	5.55	5.70	6.45	6.60	.....	6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95	.....	.....
EMPIRE	Smooth Gray	qs15.20	qs16.10	.....	20.40	qs21.25	23.55	26.25	27.55	.....	21.45	32.05	33.45	34.00	35.45	35.70	.....	46.20	46.55	48.50	49.05	50.80	57.90	58.50	60.80	.....	.....
	Non-Skid Gray	qs16.00	qs16.95	.....	21.45	qs22.40	24.80	27.60	29.00	.....	33.10	33.70	35.20	35.80	37.30	37.55	48.75	48.60	49.00	51.05	51.65	53.45	60.95	61.60	64.00	.....	.....
	Gray Tubes	3.00	3.15	3.30	3.60	3.70	3.75	3.90	4.10	4.80	4.90	5.05	5.15	5.30	5.45	5.60	6.45	6.60	6.65	6.75	6.85	7.05	8.10	8.20	8.40	9.00	9.15
	Smooth Red	qs17.95	qs19.05	.....	24.90	qs26.10	28.55	32.45	34.10	.....	38.00	38.70	40.70	41.65	43.55	44.20	.....	56.50	55.55	57.95	60.10	61.30	64.75	65.70	68.60	.....	.....
	Non-Skid Red	qs18.75	qs20.00	.....	26.10	qs27.50	30.10	34.10	35.95	.....	40.00	40.80	42.85	43.70	45.85	46.60	58.20	59.45	58.45	61.00	63.35	64.55	68.20	69.20	72.20	.....	.....
	Red Tubes	3.45	3.65	3.85	4.05	4.20	4.20	4.65	5.15	5.35	5.55	5.65	5.90	6.05	6.20	6.40	7.65	7.80	7.90	8.15	8.35	8.50	9.50	10.00	10.10	10.95	11.10
ENDURANCE	Ball Bearing Non-Skid	.....	qs18.50	.....	qs23.75	.....	qc27.50	.....	.....	.....	s36.25	qc37.00	c38.75	c40.00	.....	.....	.....	qc51.50	qc53.00	qc55.50	c56.25	.....	c63.50	cs65.25	c67.25	.....	.....
	Gray Tubes	3.45	3.60	3.85	4.05	4.20	4.25	4.60	4.80	5.50	5.50	5.60	5.70	5.95	6.15	6.15	7.30	7.30	7.35	7.55	7.70	7.85	9.10	9.30	9.30	10.50	10.65
	Red Tubes	3.85	3.90	4.35	4.90	5.00	5.10	5.75	6.00	6.15	6.15	6.40	6.60	6.80	7.25	7.25	8.35	8.35	8.55	8.75	8.95	9.20	10.30	10.65	10.65	11.75	12.10
FALLS	Ribbed	.....	23.60	.....	30.70	.....	33.00	.....	.....	.....	42.60	45.70	47.25	49.00	.....	.....	.....	.....	59.10	60.20	62.50	.....	.....	.....	.....	.....	.....
	"Neverslip" Non-Skid	.....	25.30	.....	32.80	34.40	35.30	.....	.....	.....	45.40	48.90	50.25	51.85	.....	54.85	58.30	60.50	62.50	63.80	44.70	68.00	79.65	81.30	82.90	98.50	99.50
	Pure Gum Green Tubes	4.80	5.00	.....	6.80	7.05	7.20	.....	.....	.....	8.95	9.20	9.45	9.70	9.90	10.20	11.25	11.50	11.85	12.15	12.45	12.75	13.95	14.30	14.55	16.40	17.10
FEDERAL	Plain	qs14.30	qs13.90	.....	qs18.05	qs19.10	s21.10	qc24.70	.....	.....	qs27.65	qc28.20	c29.60	c30.20	qc34.45	c32.20	.....	qc39.40	c40.65	c42.50	c43.20	c44.95	c48.50	.....	c51.45	.....	.....
	Traffik Tread	qs14.95	qs14.60	.....	qs18.90	qs20.00	s22.15	qc25.85	.....	.....	qs29.00	qc29.65	c30.90	c31.70	qc36.20	c33.80	.....	qc41.30	qc42.80	qc44.65	qc45.40	qc47.20	qc50.95	.....	c53.95	.....	.....
	Rugged Tread	qs16.85	qs16.40	.....	qs21.30	.....	s24.90	qc29.06	.....	.....	qs32.60	qc33.35	c34.75	c35.70	qc40.70	c38.00	.....	qc46.50	c48.15	c50.20	c51.05	c53.15	c57.30	.....	c60.70	.....	.....
	Gray Tubes	3.10	3.05	.....	3.75	3.80	3.95	4.70	.....	.....	4.85	5.05	5.05	5.30	5.65	5.65	.....	6.35	6.55	6.55	6.80	7.05	8.00	8.30	8.30	.....	.....
	Red Skin Tubes	3.70	3.45	.....	4.35	4.40	4.55	5.45	.....	.....	5.55	5.80	5.80	6.10	6.55	6.55	.....	7.25	7.50	7.50	7.85	8.10	9.20	9.50	9.50	.....	.....
FIRESTONE	Round Tread	13.50	14.00	18.25	17.90	19.55	21.10	23.80	30.00	31.90	27.85	28.35	30.00	30.45	31.65	37.90	39.80	40.85	41.75	43.25	43.95	53.75	50.90	51.75	53.65	83.20	89.25
	Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	34.20	37.50	31.50	32.05	33.90	34.50	36.30	43.40	44.55	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	95.30	101.35
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
	Triple Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	cs47.85	cs49.10	c50.45	.....	.....	.....	cs53.90	c55.30	c56.75	c58.15	c59.50	.....	c70.60	.....	c73.90	.....	.....
	F F Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	c51.40	52.75	c54.20	.....	.....	.....	c57.85	c59.40	c60.95	c62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
	Super Size Red Tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.15	7.30	7.45	.....	.....	.....	8.30	8.45	8.65	8.85	9.00	.....	10.25	.....	10.80	.....	.....
FISK	Plain	qs13.80	qs13.40	qs17.90	17.45	qs18.35	20.40	23.80	s26.10	s32.30	s26.75	27.20	28.55	29.15	33.30	37.60	.....	qc38.05	39.30	41.10	41.75	c50.15	c46.90	53.10	49.65	cs74.50	.....
	Gray and Black Non-Skid	qs14.50	qs14.10	.....	18.30	qs19.30	21.40	25.00	.....	s33.95	s28.00	28.60	29.85	30.65	35.00	39.45	qc38.50	qc39.95	41.30	43.10	43.90	c52.65	c49.20	55.70	52.10	cs78.20	cs70.65
	Red Non-Skid	.....	qs18.30	.....	22.90	qs24.15	26.75	.....	.....	.....	s33.65	34.40	35.85	36.75	.....	47.35	qc46.15	qc47.90	49.60	51.80	52.60	c63.30	c59.10	66.90	62.50	.....	cs84.80
	Ribbed Cord	.....	.....	.....	.....	.....	qc37.60	.....	.....	.....	.....	qc47.85	qc49.10	qc50.45	.....	.....	cs53.90	qc55.30	qc56.75	qc58.15	qc59.50	.....	qc70.60	.....	qc73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	.....	.....	qc39.50	.....	.....	.....	.....	qc50.25	qc51.60	qc53.00	.....	.....	qc56.65	qc58.10	qc59.60	qc61.05	qc62.50	.....	qc74.15	.....	qc77.60	.....	.....
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.75	4.75	4.95	4.95	5.15	5.50	5.50	6.15	6.15	6.40	6.65	6.90	7.80	8.10	8.10	9.25	9.45	
	Red Tubes	.....	3.45	.....	4.30	.....	4.40	5.20	.....	5.45	5.45	5.70	5.70	5.95	6.35	6.35	7.10	7.10	7.30	7.30	7.65	7.90	8.95	9.30	9.30	.....	10.90	

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
G & J	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Non-Skid	15.85	14.50	.....	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Stalwart Tread	.....	16.40	.....	21.35	22.45	24.55	.....	.....	.....	33.50	34.10	35.90	36.65	.....	38.95	.....	47.15	48.75	50.95	51.70	53.85	57.85	.....	61.25	.....	.....
	Plain Cord	.....	.....	.....	.....	.....	34.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	.....
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	.....
GENERAL	Plain	.....	16.90	.....	21.05	.....	26.20	29.45	.....	.....	34.20	34.70	36.80	37.45	38.85	39.40	.....	.....	46.10	48.30	50.25	53.45	59.40	61.00	61.30	.....	.....
	Non-Skid	18.35	19.55	.....	24.75	26.70	29.45	33.65	.....	.....	38.65	39.40	41.65	42.40	44.60	45.30	.....	52.20	53.65	56.45	57.25	59.70	66.70	69.45	70.40	.....	.....
	Gray Tubes	3.05	3.10	3.55	3.70	3.90	4.05	4.30	.....	.....	5.00	5.25	5.45	5.60	5.80	5.90	.....	6.90	7.00	7.20	7.55	7.70	8.30	8.50	8.75	.....	10.20
	Red Tubes	3.85	4.00	4.60	4.85	4.90	5.10	5.40	.....	.....	5.40	6.60	6.90	7.00	7.35	7.50	.....	8.35	8.50	8.70	9.00	9.20	10.25	10.30	10.55	.....	12.55
	Rib Tread	.....	.....	.....	.....	.....	qc37.60	.....	.....	.....	.....	qc47.85	qc49.10	qc50.45	.....	.....	.....	qc55.30	qc56.75	qc58.15	c59.50	.....	c70.60	.....	c73.90	.....	.....
	Non-Skid	.....	.....	.....	.....	.....	qc40.45	.....	.....	.....	.....	qc51.40	qc52.75	qc54.20	.....	.....	.....	qc59.40	qc60.95	qc62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
GILLETTE SAFETY	Plain	14.90	13.85	.....	17.95	.....	21.10	.....	.....	.....	28.20	28.70	30.05	30.50	.....	32.25	.....	.....	41.40	43.30	43.95	.....	50.70	56.25	52.35	.....	.....
	Ribbed	.....	15.60	.....	21.35	.....	24.10	.....	.....	.....	31.50	32.05	33.90	34.50	.....	36.90	.....	.....	46.80	48.65	49.20	.....	57.85	57.85	61.05	.....	.....
	5,000-Mile Non-Skid	18.35	19.50	.....	24.75	.....	29.45	.....	.....	.....	38.65	39.40	41.65	42.40	.....	45.30	.....	.....	56.20	59.15	60.00	.....	71.25	72.75	73.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	.....	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	.....	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
	Gray Tubes	2.75	3.00	.....	3.75	.....	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	.....	8.00	8.15	8.30	.....	.....
	Hard Service Red Tubes	.....	3.70	.....	4.65	.....	4.90	5.35	.....	.....	6.00	6.05	6.15	6.30	6.55	6.55	.....	.....	8.10	8.25	8.40	.....	9.65	9.90	10.00	.....	.....
GLOBE	Plain	19.90	s19.55	24.65	25.45	s28.15	28.95	31.50	.....	36.40	34.50	34.90	36.60	38.35	38.75	39.60	43.75	qc45.60	47.25	48.70	50.10	51.50	57.80	59.70	61.10	79.50	81.10
	Good Grip Non-Skid	22.35	s22.25	27.35	28.15	s30.75	32.45	36.25	.....	40.10	38.10	38.75	40.45	41.20	42.90	43.25	47.50	qc50.80	53.05	56.15	59.55	61.60	66.50	67.85	72.60	90.65	97.25
	Red Tubes	3.50	3.65	3.95	4.25	4.45	4.50	4.75	.....	5.85	5.95	6.15	6.35	6.50	6.60	6.85	7.75	7.85	8.00	8.10	8.35	8.50	9.50	9.80	9.90	11.00	11.20
	Gray Tubes	3.05	3.25	3.50	3.85	3.95	4.00	4.20	.....	5.15	5.30	5.40	5.65	5.75	5.90	6.05	6.90	6.95	7.10	7.20	7.40	7.50	8.50	8.65	8.80	9.80	10.00
GOODRICH	Plain	13.80	13.40	17.95	17.45	18.35	20.40	23.80	25.30	28.35	26.75	27.25	28.55	29.15	33.30	34.20	37.00	38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65	74.55	67.30
	Safety Tread	14.45	14.10	18.80	18.25	19.30	21.40	24.95	26.50	29.70	28.00	28.60	29.85	30.65	35.00	35.90	38.90	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	78.20	70.70
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.75	4.85	5.00	5.15	5.80	6.00	5.95	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	9.25	9.45
	Brown Tubes	3.40	3.35	3.80	4.20	4.25	4.30	5.05	5.35	5.50	5.30	5.40	5.55	5.70	6.45	6.60	6.60	6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95	10.30	10.50
	S. S. Silvertown Ribbed Tread	.....	.....	.....	.....	.....	37.60	.....	.....	.....	.....	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	89.65
	Q. D. Silvertown Ribbed Tread	.....	.....	.....	.....	.....	39.35	.....	.....	.....	.....	50.05	51.35	52.75	.....	55.35	56.40	57.80	59.35	60.80	62.25	63.70	73.80	75.50	77.30	.....	93.70
	S. S. Silvertown Safety Tread	.....	.....	.....	.....	.....	39.50	.....	.....	.....	.....	50.25	51.60	53.00	.....	.....	56.65	58.10	59.60	61.05	62.50	.....	74.15	.....	77.60	.....	94.15
	Q. D. Silvertown Safety Tread	.....	.....	.....	.....	.....	41.30	.....	.....	.....	.....	52.60	53.95	55.40	.....	.....	59.25	60.70	62.30	.....	65.35	.....	77.50	.....	81.15	.....	98.40
GOODYEAR	Plain	.....	qs14.35	.....	q18.25	qs19.60	21.35	qc24.20	.....	.....	q28.45	c29.05	30.45	31.20	qc32.60	c33.10	qc38.85	qc40.05	41.35	c43.30	43.95	c45.80	c50.75	c51.55	c53.80	.....	.....
	All-Weather	.....	qs16.80	.....	q21.35	qs23.00	24.95	qc28.35	.....	.....	q33.30	c34.00	35.70	36.45	qc38.10	c38.70	qc45.45	qc46.90	48.40	c50.60	51.35	c53.65	c59.40	c60.30	c62.95	.....	.....
	Ribbed Tread Cord	.....	.....	.....	qc35.20	.....	qc37.60	qs40.05	.....	.....	qc46.20	qc47.85	qc49.10	qc50.45	.....	.....	qc53.90	qc55.30	c56.75	qc58.15	c59.50	.....	c70.60	.....	c73.90	.....	c89.65
	All-Weather Cord	.....	.....	.....	qc37.85	.....	qc40.45	qc43.05	.....	.....	qc49.65	qc51.40	qc52.75	qc54.20	.....	.....	qc57.90	qc59.40	c60.95	qc62.40	c63.95	.....	c75.80	.....	c79.45	.....	c96.30
	Unusual Sizes—Plain Tread	.....	.....	.....	.....	.....	.....	cs29.30	.....	.....	.....	qs34.90	.....	.....	cs39.15	qs39.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs64.55	qc83.10	.....
	All-Weather	.....	.....	.....	.....	.....	.....	cs34.30	.....	.....	.....	qs40.85	.....	.....	cs45.80	qs46.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs75.50	qc97.25	.....
	Regular Tubes	.....	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	.....	.....
	Heavy Tourist Tubes	.....	3.95	.....	4.50	.....	4.95	5.35	.....	.....	6.40	6.60	6.75	6.95	.....	7.20	8.40	.....	8.65	8.80	8.95	9.25	10.50	10.75	10.95	11.70	11.90
GORDON	Lotraction Tread	.....	qs15.80	.....	qs20.20	.....	qc23.75	.....	.....	.....	qs31.30	qc31.95	qc33.50	qc34.30	.....	.....	.....	.....	.....	qc47.65	qc48.35	.....	qs56.85	.....	qs58.85	.....	.....
	Triangle Tread	qs15.60	qs16.75	.....	qs21.35	qs23.00	25.30	cs29.70	.....	.....	qs33.50	34.10	35.70	36.45	c88.10	39.75	.....	qc52.45	c48.40	49.95	50.50	c54.75	c57.70	cs58.50	61.10	.....	.....
	Gray Tubes	3.40	3.55	.....	4.05	4.30	4.45	4.80	.....	.....	5.75	5.95	6.10	6.25	6.35	6.50	.....	7.70	7.80	7.90	8.05	8.35	9.45	9.70	9.85	.....	.....
	Red Tubes	3.85	3.95	.....	4.50	4.75	4.95	5.35	.....	.....	6.40	6.60	6.75	6.95	7.05	7.20	.....	8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95	.....	.....
GRYPHON	Non-Skid	15.60	15.00	.....	19.25	20.70	22.85	27.10	.....	31.70	29.95	30.65	31.90	32.80	37.10	34.75	.....	42.45	44.10	45.75	46.65	48.35	52.55	59.40	55.60	.....	.....
	Red Tubes	3.70	3.55	4.00	4.40	4.45	4.55	4.90	5.20	5.60	5.80	5.90	6.15	6.40	6.55	6.65	7.45	7.50	7.65	7.75	7.90	8.15	9.35	9.65	9.45	.....	.....
	Gray Tubes	3.25	3.20	3.70	3.75	4.05	4.15	4.80	4.95	5.20	5.00	5.10	5.25	5.45	6.00	5.70	6.85	6.60	6.75	6.90	7.05	7.35	8.40	8.95	8.60	.....	.....
HAMILTON	Cable Tread	14.80	15.85	.....	20.50	21.60	qc23.55	qc26.60	28.20	29.80	31.50	qc32.10	qc33.70	qc34.35	qc36.10	qc36.70	38.30	43.80	qc45.75	qc47.80	qc48.50	qc50.55	qc58.15	qc59.00	qc61.30	.....	77.90
	Non-Skid	16.20	17.25	.....	22.00	23.00	qc24.95	qc28.00	29.65	31.55	33.25	qc33.80	qc35.45	qc36.10	qc37.85	qc38.45	.....	46.35	qc48.30	qc50.30	qc51.00	qc53.05	qc61.65	qc62.50	qc64.80	.....	82.20
	Invincible and Perfection Pink Tubes	3.55	3.65	3.80	4.35	4.40	4.55	4.80	5.00	5.60	5.70	5.80	5.90	6.15	6.30	6.45	7.10	7.20	7.30	7.45	7.70	7.85	8.65	8.85	9.00	9.75	10.80
	Gray Tubes	2.90	3.00	3.20	3.50	3.60	3.75	3.95	4.35	4.70	4.75	4.85	5.05	5.20	5.35	5.45	6.30	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	8.95	9.45
HANES	Plain	13.45	14.00	.....	17.85	19.50	21.10	23.80	.....	.....	27.80	28.30	29.95	30.40	31.60	32.15	.....	.....	41.70	43.20	43.90	45.70	50.85	51.75	53.65	.....	.....
	Non-Skid	15.10	15.65	.....	19.95	21.35	23.60	26.95	.....	.....	31.50	32.05	33.90	34.50	36.30	36.90	.....	.....	46.75	48.60	49.20	51.05	59.95	61.05	63.10	.....	.....
	Tubes	3.10	3.20	.....	3.80	3.95	4.10	4.30	.....	.....	5.05	5.30	5.55	5.70	5.85	6.00	.....	.....	7.15	7.35	7.60	7.80	8.45	8.65	8.95	.....	.....
HARDMAN SENIOR	Plain	.....	s20.75	s24.00	s25.20	s27.90	29.70	34.00	.....	.....	s36.00	37.10	39.10	40.40	41.85	43.90	s47.75	49.40	51.35	53.25	55.25	57.75	63.10	s65.25	67.00	s86.35	s89.50
	Non-Skid	25.00	s23.50	s27.00	s28.00	s31.00	33.10	37.25	.....	.....	s40.00	41.15	43.50	44.90	47.15	48.85	s54.15	56.05	58.20	60.35	62.50	64.25	71.70	s74.80	76.00	s95.50	s99.50
	Red Tubes	.....	3.95	4.35	5.00	5.10	5.25	5.85	.....	.....	6.30	6.50	6.75	6.95	7.30	7.40	8.40	8.50	8.70	8.90	9.20	9.35	10.45	10.75	10.90	12.50	12.75
HARDMAN JUNIOR	Plain	.....	s15.50	s19.50	s20.35	s21.50	22.85	26.00	.....	.....	s27.75	29.50	31.40	32.45	34.90	36.50	s42.35	43.45	45.10	46.20	48.25	50.00	54.20	s56.00	58.00	.....	.....
	Non-Skid	18.00	s16.75	s22.00	s21.50	s22.50	24.15	29.40	.....	.....	s29.00	30.25	32.45	34.00	36.00	38.00	s44.00	45.00	46.75	47.85	49.50	51.60	56.00	s58.00	60.00	.....	.....
	Gray Tubes	.....	3.75	.....	4.30	4.40	4.50	4.85	.....	.....	5.75	5.85	6.00	6.20	6.40	6.45	7.55	7.60	7.70	7.85	8.05	8.20	9.35	9.50	9.60	.....	.....
HARTFORD	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Hartford Anti-Skid	15.25	14.50	.....	18.80	10.80	21.85	28.45	.....	.....	28.85	29.35	20.80	31.50	28.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	.....
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	.....
HAWKEYE	Plain	13.42	14.47	.....	17.88	.....	21.12	.....	.....	.....	27.83	29.15	30.80	31.30	.....	33.28	.....	40.70	41.53	43.34	44.06	45.93	50.38	51.32	53.13	.....	.....
	Non-Skid	14.80	15.90	.....	19.97	.....	23.60	.....	.....	.....	31.52	32.12	33.83	34.54	.....	36.69	.....	44.39	45.49	47.41	47.91	49.72	55.88	56.82	58.53	.....	.....
	Ribbed Tread Non-Skid	19.47	20.96	.....	26.57	.....	30.75	.....	.....	.....	40.70	41.53	43.78	44.61	.....	46.59	.....	51.81	54.07	57.09	61.77	62.76	68.81	71.83	73.48	.....	.....
	Red Tubes	3.25	3.35	.....	4.00	4.25	4.05	4.35	.....	.....	5.40	5.55	5.75	5.90	6.00	6.10	.....	7.15	7.20	7.30	7.50	7.70	8.60	8.80	8.90	.....	.....
	Gray Tubes	2.80	2.90	.....	3.45	3.60	3.65	3.70	.....	.....	4.70	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.45	6.55	6.65	6.75	7.70	7.80	8.00	.....	.....

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
HENDRIE	Plain	16.10	16.65	18.00	19.90	21.30	22.30	24.95	.....	29.00	29.55	30.65	31.35	32.05	33.15	33.40	40.70	41.45	42.15	43.80	44.35	45.85	52.35	53.50	56.75	69.60	72.20
	Non-Skid	19.20	20.20	21.30	24.15	24.70	26.75	29.25	.....	33.05	34.20	35.10	36.25	37.05	38.05	38.65	46.55	47.25	48.05	51.60	55.30	54.20	61.90	62.45	63.75	78.40	85.25
	California Non-Skid	22.05	23.15	24.40	27.80	28.35	31.90	33.60	.....	37.95	39.35	40.30	41.70	42.55	43.85	44.50	53.50	54.40	55.20	59.30	60.10	62.95	71.10	71.70	73.30	90.15	98.00
	Hendrie Gray Tube	3.45	3.65	4.05	4.25	4.40	4.45	4.75	.....	5.80	5.90	6.05	6.25	6.45	6.55	6.70	7.65	7.80	7.85	8.00	8.25	8.35	9.40	9.65	9.80	10.80	11.00
	California Red Tube	4.35	4.40	4.50	5.30	5.35	5.40	5.70	.....	6.70	6.90	7.00	7.15	7.30	7.45	7.60	9.20	9.40	9.65	9.85	10.05	10.30	11.65	11.75	12.00	12.60	12.75
HIGHWAY	Non-Skid	qs14.85	qs14.30	.....	qs18.35	.....	c21.75	.....	.....	.....	qs28.50	qc29.20	c30.40	c31.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
HOOD	Plain	20.30	20.80	22.35	27.50	29.45	30.95	33.10	.....	.....	36.20	36.85	37.55	38.50	39.60	40.65	53.00	53.80	55.95	57.40	58.50	59.85	68.85	70.20	71.35	91.50	92.50
	Puritan Plain	qs.....	qs16.75	.....	qs19.00	qs20.35	21.45	c24.20	c.....	.....	qs28.90	c29.70	c30.45	c31.15	c32.30	c33.45	.....	c40.55	c41.75	c43.30	c44.00	c45.70	c51.15	cs 52.95	c53.75	.....	.....
	Puritan Gripper Non-Skid	qs.....	qs18.95	.....	qs21.85	qs23.50	25.25	c28.85	c.....	.....	qs35.30	c35.75	c36.20	c36.85	c37.65	c39.05	.....	c47.80	c48.85	c50.50	c51.15	c52.65	c58.50	cs 60.25	c61.45	.....	.....
	Hood Red and Gray Tubes	3.85	4.00	4.50	4.75	4.90	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.60	9.45	9.60	9.75	11.20	11.75
	Puritan Red and Gray Tubes	3.40	3.45	.....	4.05	4.20	4.40	4.80	5.20	5.40	5.15	5.25	5.35	5.50	5.90	6.30	6.85	6.95	7.05	7.15	7.25	7.60	8.30	8.45	8.60	10.00	11.00
HOWE	Ribbed Tread	.....	qs18.80	.....	qs22.50	.....	.....	.....	.....	.....	qs32.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs19.20	.....	.....	.....	.....	29.40	.....	.....	.....	.....	c36.80	c37.75	c39.00	cs40.50	c42.80	.....	qc46.25	c48.20	c50.25	c52.80	cs54.05	c60.00	cs62.50	c63.95	.....	.....
	Gray Tubes	2.90	3.00	3.20	3.50	3.60	3.75	3.95	4.25	4.70	4.75	4.85	5.00	5.15	5.40	5.50	6.10	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	9.20	9.45
	Red Tubes	3.55	3.65	3.80	4.35	4.40	4.55	4.80	5.00	5.55	5.65	5.80	5.90	6.00	6.20	6.30	7.65	7.80	8.00	8.25	8.35	8.55	9.70	10.10	10.25	10.85	11.00
INDIANA	Plain	13.50	14.00	18.25	17.90	19.55	21.10	23.80	.....	.....	27.85	28.35	30.00	30.45	31.65	37.90	.....	40.85	41.75	43.25	43.95	53.75	50.90	51.75	53.65	.....	.....
	Button and Traction Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	.....	.....	31.50	32.05	33.90	34.50	36.30	43.40	.....	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	3.95	.....	.....	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	.....
	Brown Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	.....
KELLY-SPRINGFIELD	Plain	qs21.90	qs20.95	.....	25.45	s28.20	29.90	32.50	s42.00	s44.95	s35.00	36.30	37.65	38.95	40.10	41.35	s56.20	s46.35	47.95	49.40	50.75	52.10	58.95	60.65	62.15	s81.05	s93.10
	Driving Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs42.50	c43.70	c44.95	c46.20	c48.65	c51.05	c62 60	c53.45	c55.45	c58.05	c63.95	c65.10	c72.20	c75.55	c76.95	.....	cs100.60
	Kant-Slip Tread	qs26.55	qs25.00	.....	qs31.30	qs32.30	35.70	c38.80	.....	.....	s43.15	c44.55	c45.90	c47.50	c49.05	c51.80	c62.85	c53.70	c55.65	c59.00	64.05	c65.40	c72.85	75.65	77 45	cs96.35	cs112.05
	Red Tubes	3.65	3.75	4.00	4.80	4.95	5.15	5.45	5.85	5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80	8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
KNIGHT	Blackstone Non-Skid	.....	15.85	.....	20.20	21.55	23.85	.....	.....	.....	31.85	32.40	34.25	34.85	.....	37.30	.....	42.15	42.50	44.20	44.70	.....	54.50	.....	57.35	.....	.....
	Knight Plain	.....	22.55	.....	27.95	30.05	30.80	33.45	.....	.....	37.20	38.45	.....	41.05	.....	43.25	.....	47.40	48.75	50.00	52.20	54.50	61.00	62.25	64.75	.....	.....
	Knight Non-Skid	.....	25.00	.....	31.30	32.30	35.70	38.80	.....	.....	43.15	44.55	45.90	47.50	.....	51.80	.....	53.70	55.65	59.00	64.05	65.40	72.85	75.65	77.45	96.35	112.05
	Blackstone Tubes	.....	3.10	.....	3.60	3.75	3.80	4.05	.....	.....	4.80	4.95	5.10	5.30	.....	5.55	.....	6.35	6.40	6.60	6.70	6.90	7.75	7.90	8.05	.....	.....
	Knight Red Tubes	.....	3.70	.....	4.60	4.65	4.80	.....	.....	.....	5.95	6.15	6.30	6.45	6.90	6.95	7.90	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
KOKOMO	Plain	qs15.25	qs15.85	.....	qs20.60	.....	q23.80	.....	.....	.....	qs31.40	.....	c33.65	c34.35	.....	c36.70	.....	.....	c45.35	c4 8,40	c49.25	c51.25	.....	.....	c58.50	.....	.....
	Gridiron Non-Skid	qs16.00	qs16.65	.....	qs21.50	.....	q25.20	.....	.....	.....	qs33.10	.....	c35 25	c36.10	.....	c38 50	.....	.....	c48 75	c 50 90	c51.60	c53.75	.....	.....	c61.50	.....	.....
	Standard Gray Tubes	2.90	3.05	3.25	3.60	3.80	3.85	4.05	4.25	.....	4.75	4.80	5.00	5.15	5.30	5.45	.....	.....	6.20	6.35	6.60	6.85	7.80	8.10	8.35	8.80	.....
	Standard Red Tubes	3.25	3.35	3.50	4.05	4.25	4.30	4.50	4.75	.....	5.30	5.40	5.50	5.65	5.95	6.10	.....	.....	7 00	7 10	7.35	7.60	8.65	8.80	9.00	9.70	.....
	Everlaster Gray Tubes	3.45	3.55	3.95	4.30	4.45	4.50	5.00	5.10	.....	5.60	5.65	5.85	6.05	6.20	6.45	.....	.....	7.35	7.55	7.80	8.05	9.15	9.30	9.50	10.85	.....
	Everlaster Red Tubes	3.75	3.90	4.45	4.80	4.95	5.05	5.25	5.65	.....	6.20	6.30	6.50	6.65	6.90	7.15	.....	.....	8.10	8.50	8.60	8.95	10.15	10.20	10.50	12.05	.....
LEE	Standard Plain	15.75	14.25	19.00	18.30	19.40	21.45	26.75	30.25	33.00	28.10	29.00	30.00	31.05	35.55	34.20	40.70	40.50	41.70	43.15	43.85	46.65	50.90	51.75	53.65	73.05	73.80
	Standard Non-Skid	16.50	15.70	21.70	20.15	21.35	23.60	29.85	33.40	36.50	30.90	31.90	33.00	34.15	39.35	37.60	44.10	44.55	45.85	47.45	48.25	51.30	56.00	56.80	59.00	88.00	88.75
	Puncture Proof Plain	26.95	26.90	26.80	33.60	34.50	35.75	40.85	43.25	43.65	41.05	44.75	46.80	48.35	52.85	53.75	53.25	54.35	56.75	58.85	60.05	62.25	71.45	72.50	73.50	81.60	83.85
	Puncture Proof Non-Skid	29.60	28.25	33.20	34.70	35.90	37.85	44.45	46.75	47.95	43.35	47.75	50.05	51.35	57.90	58.65	61.40	59.20	60.90	63.10	64.85	70.05	76.55	77.90	79.65	95.65	98.00
	Gray Tubes	3.10	3.05	3.40	3.75	4.00	4.10	4.55	4.80	4.95	5.00	5.10	8.25	5.40	5.80	6.00	6.50	6.15	6.25	6.45	6.65	6.90	7.80	7.95	8.10	9.25	9.45
	Red Tubes	3.40	3.35	3.80	4.20	4.35	4.45	5.05	5.35	5.50	5.45	5.55	5.70	5.90	6.45	6.50	7.20	6.80	7.00	7.15	7.35	7.65	8.70	8.85	8.95	10.30	10.50
McCREARY	Plain Tread	15.50	16.45	19.90	21.60	23.30	25.60	.....	.....	.....	33.65	34.50	35.50	36.95	.....	37.60	.....	46.50	48.30	50.60	51.20	53.45	48.65	.....	61.60	.....	.....
	Non-Skid	17.50	17.95	.....	23.60	25.45	27.95	.....	.....	.....	36.85	36.95	38.95	39.85	.....	43.25	.....	.....	51.10	53.75	54.55	56.85	64.75	.....	67.05	.....	.....
	Gray	3.05	3.10	3.55	3.70	3.90	4.05	4.30	.....	.....	5.00	5.25	5.45	5.60	.....	5.90	.....	6.90	7.00	7.20	7.55	7.70	8.30	.....	8.75	.....	.....
	Red	3.85	4.00	4.60	4.85	4.90	5.10	5.40	.....	.....	6.40	6.60	6.90	7.00	.....	7.50	.....	8.35	8.50	8.70	9.00	9.20	10.25	.....	10.55	.....	.....
McGRAW	Congress Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	.....	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	.....	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Congress Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Imperial Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Imperial Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	qs42.90	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	McGraw Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	McGraw Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Pullman Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Pullman Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	7.10	7.15	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	6.50	6.30	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
McNAULL		.....	.....	.....	.....	.....	.....	.....	.....	.....	32.83	.....	42.69	.....	.....	.....	.....	54.71	.....	58.06	.....	62.42	70.65	74.44	74.44	.....	100.57
	Tubes	.....	3.90	.....	5.00	.....	5.39	5.75	.....	.....	6.38	6.49	6.71	6.93	7.04	7.20	.....	8.42	8.69	8.85	9.18	9.46	10.39	10.61	11.00	12.59	12.81
MANSFIELD	Plain	14.75	14.45	18.95	19.40	20.95	22.15	25.75	.....	26.55	27.90	29.60	30.00	31.05	35.00	33.00	.....	.....	41.80	43.12	44.35	45.60	50.20	58.10	52.25	.....	.....
	Non-Skid	16.25	15.90	.....	21.35	23.15	24.45	28.35	.....	.....	30.80	32.60	33.00	34.10	38.50	36.30	.....	.....	46.00	47.45	48.75	50.20	55.30	.....	59.05	.....	.....
	Gray Tubes	3.00	3.05	3.55	3.75	3.90	4.10	4.75	.....	5.20	4.85	5.00	5.20	5.40	5.90	5.70	.....	.....	6.50	6.60	6.85	7.05	8.05	8.60	8.30	.....	.....
	Red Tubes	3.70	.....	.....	4.40	4.60	4.80	5.50	.....	6.20	5.90	6.05	6.20	6.35	7.00	6.80	.....	.....	7.95	8.10	8.30	8.55	9.60	10.30	9.90	.....	.....
MARATHON	Runner	qs14.95	qs15.70	.....	qs19.95	qs21.40	23.35	c26.90	.....	.....	qs31.85	c32.80	c33.75	c34.70	c36.10	c37.55	qc43.80	.....	c46.55	c47.95	c49.40	c51.25	c59.95	c60.10	c61.30	cs81.80	cs83.95
	Angle Non-Skid	qs15.75	qs16.50	.....	qs21.00	qs22.50	24.55	c28.30	.....	.....	qs33.50	c34.50	c35.50	c36.50	c38.00	c39.50	qc46.10	c47.55	c49.00	c50.45	c51.90	c53.95	c61.00	c63.25	c64.50	cs86.10	cs88.35
	Heavy Red Tube	3.10	3.30	.....	4.15	4.30	4.45	4.80	.....	.....	5.55	5.70	5.90	6.05	6.20	6.40	7.45	7.65	7.85	8.10	8.30	8.50	9.50	9.80	10.05	11.25	11.60
	Gray Tube	2.80	3.05	.....	3.75	3.90	4.05	4.40	.....	.....	5.00	5.15	5.35	5.50	5.65	5.85	6.60	6.80	7.05	7.25	7.50	7.70	8.50	8.80	9.05	10.15	10.50
	Cord Runner	.....	.....	.....	qs32.35	qs33.15	34.55	.....	.....	.....	qs42.50	c43.95	c45.15	c46.35	.....	.....	qc49.50	c50.80	c52.10	c53.35	c54.65	.....	c64.80	.....	c67.90	.....	cs82.30
	Cord Angle Non-Skid	.....	.....	.....	qs34.05	qs34.90	36.40	.....	.....	.....	qs44.75	c46.25	c47.50	c48.80	.....	.....	qc52.10	c53.45	c54.85	c56.15	c57.55	.....	c68.20	.....	c71.50	.....	cs86.65

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
MARION	Plain	qs13.20	qs14.30	.....	qs18.05	c20.00	c22.00	.....	.....	.....	qs28.60	.....	c30.80	c32.55	.....	.....	.....	.....	.....	c46.00	c47.30	c47.85	c49.50	c55.00	c56.65	c58.30	.....	.....
	Non-Skid	qs14.95	qs15.95	.....	qs20.40	.....	c23.90	.....	.....	.....	qs30.80	c31.50	c33.50	c34.25	c35.90	c36.50	.....	.....	.....	6.40	6.60	6.75	7.10	8.10	8.20	8.25	.....	.....
	Gray	2.90	3.00	.....	3.60	3.70	3.75	.....	.....	.....	4.75	5.00	5.20	5.30	5.45	5.55	.....	.....	.....	7.80	8.40	8.60	9.25	9.50	9.70	9.90	.....	.....
	Red	.....	3.80	.....	4.50	4.75	4.85	.....	.....	.....	5.20	6.25	6.50	6.65	6.90	7.10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MASON	Plain Tread	14.10	14.90	.....	19.00	20.40	22.15	.....	.....	.....	29.10	29.60	31.35	31.85	.....	33.65	.....	40.85	41.75	43.25	43.95	45.70	50.90	51.75	53.65	.....	.....
	Ribbed Tread	14.85	15.95	.....	20.35	21.95	23.95	27.25	.....	.....	30.20	30.70	32.60	33.10	34.95	35.35	42.70	44.50	45.05	46.80	47.45	49.25	56.10	57.95	59.95	.....	.....
	Non-Skid	15.40	16.50	.....	21.20	22.65	24.80	28.05	.....	.....	31.50	32.05	33.90	34.50	36.30	36.90	44.55	46.35	46.75	48.60	49.15	51.05	59.95	61.05	63.10	.....	.....
	Gray Tubes	3.15	3.20	.....	3.80	3.95	4.15	4.35	.....	.....	5.05	5.35	5.55	5.70	5.90	6.00	6.90	7.05	7.15	7.35	7.65	7.80	8.50	8.70	8.95	.....	.....
	Red Tubes	3.65	3.75	.....	4.55	4.70	4.85	5.10	.....	.....	6.05	6.20	6.50	6.75	6.95	7.10	7.75	7.85	8.05	8.20	8.45	8.65	9.50	9.75	9.90	.....	.....
MICHELIN	Plain Tread	qs14.95	qs15.60	.....	qs21.50	qs22.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Universal Tread	.....	.....	.....	s22.50	.....	c25.40	c27.10	.....	.....	s31.50	c35.15	c35.40	c36.65	cs38.25	c39.80	qc44.75	46.50	c47.60	c50.10	c51.15	cs52.95	c58.40	cs59.80	c60.50	.....	.....
	Tubes	3.55	3.70	.....	.....	3.70	4.40	4.80	.....	5.55	5.10	5.80	5.30	6.20	5.60	6.65	7.60	6.80	8.00	7.20	8.45	7.70	9.70	10.10	10.25	11.30	11.30
MOHAWK	Plain	qs18.70	qs19.65	.....	24.00	qs26.55	28.05	c30.65	.....	.....	qs35.35	c36.50	37.55	38.90	c40.20	42.45	.....	c45.70	47.85	49.85	52.60	c53.80	c59.65	s62.00	c63.45	cs78.95	.....
	Non-Skid	qs22.55	qs23.70	.....	30.00	qs31.10	34.45	c37.55	.....	.....	qs41.60	43.10	c44.20	45.90	c47.45	50.15	.....	c54.05	56.45	58.90	61.85	c63.35	c70.35	s73.35	75.00	cs93.10	cs96.65
	Ribbed Tread	.....	qs21.10	.....	qs25.95	.....	qc30.35	.....	.....	.....	qs38.45	qc39.65	qc40.85	c42.05	.....	.....	.....	.....	c51.65	qc53.85	c56.95	.....	c64.90	.....	c68.45	.....	.....
	Pure Gum and Red Tubes	3.40	3.55	.....	4.55	4.70	4.90	5.20	.....	.....	5.75	5.85	6.10	6.25	6.35	6.55	7.35	7.65	7.85	8.00	8.25	8.60	9.35	9.65	9.95	11.40	11.60
	Keaton	.....	.....	.....	qs31.55	.....	qc36.35	.....	.....	.....	qs43.85	qc45.40	qc46.60	qc48.35	.....	.....	qc55.55	.....	c60.00	qc61.10	c64.45	.....	c74.45	.....	c78.05	.....	.....
MONARCH	Gray Tubes	3.15	3.35	.....	4.15	4.20	4.25	.....	.....	.....	5.25	5.35	5.50	5.65	.....	6.10	.....	6.80	6.90	7.15	7.35	7.60	8.60	8.70	8.95	.....	.....
	Red Tubes	3.45	3.70	.....	4.65	4.70	4.75	.....	.....	.....	5.85	5.95	6.10	6.30	.....	6.75	.....	7.50	7.75	7.90	8.10	8.45	9.60	9.75	9.85	.....	.....
NABOB	Plain Tread	qs19.95	qs20.95	.....	s25.45	qs28.20	29.90	32.50	.....	.....	q35.00	c36.30	c37.65	c38.95	c40.10	c41.35	.....	c46.35	c47.95	c49.40	c50.75	c51.20	c58.95	c60.65	c62.15	c81.05	c93.10
	Safety Traction Non-Skid	.....	qs25.00	.....	s31.30	qs32.30	35.70	38.80	.....	.....	q43.15	c44.55	c45.90	c47.50	c49.05	c51.80	.....	c53.70	c55.65	c59.60	c64.05	c65.40	c72.85	c75.65	c77.45	c96.35	c112.05
	Tubes	3.65	3.75	.....	4.60	4.95	5.15	5.45	.....	.....	6.10	6.20	6.40	6.65	6.75	6.90	.....	8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
NASSAU	Plain	12.85	13.20	14.60	17.10	18.25	19.95	23.05	22.90	24.75	26.25	26.25	28.20	28.80	31.65	31.00	33.45	38.90	38.45	40.40	40.95	42.75	45.35	49.65	48.75	60.70	63.70
	Non-Skid	14.40	14.85	16.50	18.65	20.70	22.40	26.05	23.60	27.90	29.50	30.20	31.65	32.40	35.60	34.65	37.65	43.70	43.35	45.40	46.10	48.15	51.30	55.25	54.80	69.45	72.95
	Nassau Gray Tubes	.....	.....	3.45	3.85	3.90	3.95	4.60	4.90	5.05	4.85	4.95	5.15	5.25	5.90	5.60	6.60	6.25	6.35	6.65	6.80	7.05	7.95	8.75	8.35	9.40	9.60
NATIONAL	Plain	12.30	12.00	16.05	15.60	16.40	18.25	21.30	.....	.....	23.95	24.40	25.55	26.10	29.80	30.60	.....	34.05	35.10	36.75	37.35	42.75	41.95	47.50	44.40	.....	.....
	Non-Skid	12.90	12.65	16.85	16.30	17.25	19.15	22.30	.....	.....	25.05	25.60	26.70	27.40	31.35	32.15	.....	35.75	36.95	38.55	39.25	44.90	44.10	49.95	46.65	.....	.....
	Gray Tubes	3.25	3.20	3.60	3.95	4.00	4.05	4.80	.....	.....	5.00	5.10	5.25	5.40	6.10	6.30	.....	6.45	6.60	6.80	7.00	8.00	8.20	9.05	8.55	.....	.....
	Red Tubes	3.55	3.50	4.00	4.40	4.45	4.50	5.30	.....	.....	5.60	5.70	5.85	6.00	6.80	6.95	.....	7.15	7.35	7.50	7.75	8.80	9.15	10.00	9.40	.....	.....
NEEDHAM	Plain	qs13.20	qs14.30	.....	18.15	19.25	21.20	c23.80	.....	.....	28.35	c29.00	c30.40	c30.95	c32.25	c32.75	.....	c39.90	c41.25	c43.10	c43.65	c45.30	c49.05	c49.70	c51.60	s71.45	cs73.20
	Non-Skid	.....	.....	.....	20.90	21.90	24.30	c27.25	.....	.....	32.85	c33.35	c34.85	c35.50	c36.95	c37.45	.....	c46.55	c47.50	c49.45	c50.00	c51.90	c56.20	c56.95	c59.15	s81.85	cs83.90
	Tubes	2.80	2.90	.....	3.30	3.40	3.45	3.60	.....	.....	4.55	4.70	4.85	4.95	5.05	5.15	.....	6.10	6.20	6.30	6.40	6.60	7.55	7.70	7.85	8.45	8.55
NEWCASTLE	Plain	.....	14.75	.....	19.20	21.10	22.45	23.50	.....	.....	29.45	29.95	31.40	32.00	36.60	37.60	.....	.....	43.15	45.20	45.90	52.45	51.55	58.40	55.60	.....	.....
	Non-Skid	.....	16.30	.....	21.25	23.90	24.50	26.60	.....	.....	30.80	31.50	32.80	33.70	38.50	39.50	.....	.....	45.40	47.40	48.25	55.20	54.10	61.25	57.35	.....	.....
	Shenango Non-Skid	.....	.....	.....	28.15	.....	32.15	.....	.....	.....	.....	.....	c41.30	c47.25	.....	.....	.....	.....	.....	c53.10	c57.65	.....	c65.55	.....	cs69.70	.....	.....
	Pure Gum Gray Tubes	.....	3.20	.....	4.10	4.25	s4.40	4.70	.....	.....	5.20	5.30	5.50	5.65	5.75	5.90	.....	.....	7.10	7.25	7.50	7.75	8.50	8.70	9.00	.....	.....
NORWALK	Ribbed Plain	.....	s19.65	.....	s25.45	.....	.....	.....	.....	.....	.....	.....	.....	cs40.75	.....	.....	.....	.....	.....	.....	cs54.80	.....	.....	.....	cs63.85	.....	.....
	Non-Skid	.....	s20.70	.....	s26.75	s28.25	c30.75	.....	.....	.....	s39.15	c39.85	q41.90	q42.85	.....	cs45.55	.....	.....	c54.25	q56.65	c57.50	cs59.90	c63.35	cs64.20	q67.10	.....	.....
	Gray Tubes	3.30	3.35	3.95	4.15	4.25	4.40	5.20	5.30	.....	5.40	5.55	5.70	5.85	6.25	6.30	7.15	.....	7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.75	6.00	.....	5.95	6.15	6.30	6.45	6.90	6.95	7.90	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
ORVILLE	Non-Skid	14.10	qs15.25	.....	qs22.10	.....	22.80	.....	.....	.....	qs31.75	37.70	38.20	38.55	.....	39.80	.....	.....	.....	.....	54.75	55.20	.....	.....	66.95	.....	.....
	Gray	2.95	3.05	.....	3.45	.....	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	.....	6.60	6.65	6.75	7.10	7.25	8.10	8.25	8.40	.....	.....
	Pure Gum and Red Special	3.90	4.10	.....	4.70	.....	4.85	.....	.....	.....	6.45	6.60	6.75	6.90	7.10	7.25	.....	8.50	8.65	8.85	9.00	9.20	10.55	10.70	10.90	.....	.....
PALMER	Tubes	.....	6.35	.....	6.60	.....	7.00	.....	.....	.....	8.45	8.80	9.15	9.45	9.80	10.10	10.25	11.10	11.40	11.75	12.25	.....	13.60	13.80	14.15	.....	.....
PEARCE	Morton Plain	11.00	11.85	.....	15.35	16.20	17.65	20.00	.....	.....	24.00	24.95	25.20	25.75	26.95	27.35	33.10	34.10	34.20	35.75	36.20	39.85	43.95	44.55	45.30	.....	.....
	Non-Skid	12.00	12.85	.....	16.95	18.00	19.65	22.40	.....	.....	27.10	27.90	28.50	29.50	30.20	31.10	36.00	38.00	39.00	40.15	41.40	42.00	47.20	48.50	50.00	.....	.....
	Germantown Cord Plain	.....	17.50	.....	21.95	22.25	24.00	39.00	.....	.....	33.15	34.75	35.95	36.10	40.00	43.50	38.15	45.25	46.75	48.75	50.50	52.00	56.50	.....	58.15	.....	.....
	Non-Skid	.....	18.25	.....	23.75	25.00	27.30	41.50	.....	.....	36.35	37.10	38.95	39.70	42.35	49.00	45.00	50.20	51.90	54.25	55.00	57.30	63.80	.....	64.75	.....	.....
	Red Tubes	3.25	3.45	.....	3.95	4.10	4.25	4.50	.....	.....	5.35	5.45	5.75	5.95	6.20	6.40	6.50	6.75	7.45	7.55	7.80	8.05	9.00	9.20	9.30	.....	.....
PEERLESS	Non-Skid	.....	16.80	.....	21.35	23.00	24.95	.....	.....	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	.....	.....	.....	62.95	.....	.....
	Gray Tubes	.....	3.05	.....	3.45	3.65	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	.....	.....	.....	6.50	6.75	6.90	.....	.....	.....	8.40	.....	.....
	Red Tubes	.....	3.40	.....	3.95	4.15	4.20	.....	.....	.....	5.35	5.50	5.70	5.95	.....	.....	.....	.....	7.25	7.40	7.55	.....	.....	.....	9.10	.....	.....
	Liberty Plain	.....	14.10	.....	18.95	20.30	22.40	.....	.....	.....	29.90	30.45	32.20	32.75	.....	.....	.....	.....	44.40	46.15	46.70	.....	.....	.....	59.95	.....	.....
	Liberty Non-Skid	.....	15.70	.....	19.95	21.35	23.60	.....	.....	.....	31.50	32.05	33.90	34.50	.....	.....	.....	.....	46.75	48.60	49.15	.....	.....	.....	63.10	.....	.....
	Liberty Gray Tubes	.....	3.05	.....	3.45	3.65	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	.....	.....	.....	6.50	6.75	6.90	.....	.....	.....	8.40	.....	.....
	Liberty Red Tubes	.....	3.40	.....	3.95	4.15	4.20	.....	.....	.....	5.35	5.50	5.70	5.95	.....	.....	.....	.....	7.25	7.40	7.55	.....	.....	.....	9.10	.....	.....
PENNSYLVANIA	Bar O Circle	12.80	13.45	.....	17.60	19.50	20.65	24.00	.....	.....	27.00	27.40	28.70	29.40	33.50	34.45	.....	38.40	39.70	41.40	42.05	48.15	47.35	53.60	50.10	65.15	67.80
	Ebony	14.05	14.55	19.25	18.55	19.80	21.90	25.00	31.65	34.75	29.20	29.70	31.40	32.00	33.65	34.20	41.30	43.00	43.30	45.05	45.55	47.30	55.55	56.55	58.45	70.90	73.85
	Vacuum Cup	15.60	16.10	21.35	20.60	22.00	24.30	27.75	35.20	38.65	32.40	33.00	34.90	35.55	37.40	38.00	45.90	47.75	48.10	50.05	50.60	52.55	61.70	62.85	64.95	78.75	82.00
	Ton-Tested Gray Tubes	2.80	2.90	3.15	3.40	3.55	3.70	4.05	4.40	4.90	4.95	5.05	5.25	5.45	5.55	5.75	6.50	6.65	6.70	6.80	6.95	7.25	8.15	8.25	8.40	8.80	9.00
PERFECTION	Plain	18.00	19.25	.....	23.20	24.65	27.50	29.75	.....	.....	32.10	34.10	35.20	36.40	37.60	38.85	40.10	41.35	42.70	43.90	45.25	47.45	52.60	53.85	54.00	72.70	76.00
	Non-Skid	21.25	22.25	.....	27.95	28.90	32.10	34.65	.....	.....	38.75	40.75	41.15	42.45	45.90	47.40	.....	48.30	50.00	52.50	55.00	57.35	65.20	67.50	69.00	85.75	87.55
	Gray Tubes	3.20	3.30	3.50	4.20	4.35	4.50	4.80	5.10	5.25	5.35	5.45	5.65	5.80	5.90	6.05	6 85	7.10	7.30	7.45	7.70	7.95	8.75	8.95	9.25	10.55	10.75
	Red Tubes	3.40	3.55	3.70	4.50	4.60	4.85	5.30	5.60	5.65	5.75	5.85	6.10	6.25	6.35	6.50	7.45	7.60	7.80	7.95	8.20	8.45	9.30	9.50	9.80	11.10	11.35
PHARIS	Plain	13.10	13.85	17.50	17.90	18.65	20.55	22.90	.....	.....	27.60	28.05	29.25	29.80	31.00	31.50	45.40	.....	40.00	41.55	42.10	43.55	47.25	47.85	49.70	.....	.....
	Non-Skid	.....	14.85	.....	19.15	19.95	22.00	24.60	.....	.....	29.50	30.05	31.40	31.90	33.20	33.75	47.75	42.20	42.80	44.50	45.00	46.65	50.60	51.30	53.15	83.05	73.70
	Gray Tubes	3.15	3.35	3.45	3.75	3.80	3.95	4.15	.....	.....	5.25	5.35	5.45	5.55	5.80	5.90	6.75	6.90	7.00	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.70
	Red Tubes	3.50	3.65	3.75	4.20	4.25	4.30	4.70	.....	.....	5.80	5.90	6.10	6.20	6.40	6.50	7.60	7.70	7.75	7.85	8.10	8.25	9.40	9.70	9.80	10.50	10.65
PORTAGE	Plain	s14.00	s15.10	s16.75	s19.60	s20.70	22.45	25.50	s27.00	s28.45	s30.05	30.60	32.10	32.85	34.35	35.00	s43.10	s44.55	43.65	45.75	46.40	48.80	52.20	s53.00	55.35	s79.70	.....
	Daisy Non-Skid	s16.20	s17.45	s19.30	s22.45	s23.70	25.90	29.35	.....	s32.80	s34.45	35.15	36.95	37.75	39.55	40.30	s49.75	51.15	50.25	52.50	53.35	55.60	60.05	s61.00	63.50	s87.70	s89.55
	Gray or Red Tubes	3.20	3.45	3.75	4.20	4.30	4.45	4.75	4.95	5.50	5.65	5.90	6.10	6.25	6.45	6.60	7.35	7.50	7.65	7.80	8.10	8.25	9.05	9.30	9.40	10.25	10.40

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
PORTER	Giant	qs15.00	qs16.45	.....	qs21.50	qs22.65	24.35	c26.50	.....	.....	qs31.65	c32.35	c33.30	c34.35	c35.25	c36.30	qc44.00	c45.25	c46.25	47.70	c48.80	c50.00	c56.10	cs57.20	c59.25	.....	.....
	Non-Skid	qs16.00	qs17.55	.....	qs22.85	qs24.25	26.30	c27.95	.....	.....	qs34.95	c35.45	c36.60	c37.40	c39.45	c40.00	qc47.75	c49.00	c49.75	51.15	c52.55	c53.90	c59.95	cs61.60	c62.95	.....	.....
	Gray Tubes	2.85	3.00	.....	3.60	3.70	3.75	3.95	.....	.....	4.75	4.95	5.05	5.25	5.45	5.60	6.20	6.35	6.50	6.60	6.75	6.95	7.85	8.00	8.15	.....	.....
	Red Tubes	3.15	3.40	.....	3.95	4.10	4.20	4.40	.....	.....	5.30	5.45	5.65	5.85	5.95	6.15	7.00	7.15	7.25	7.35	7.50	7.75	8.75	8.90	9.00	.....	.....
QUAKER	Plain	s18.40	s19.45	s21.00	24.30	s25.45	29.00	31.20	.....	.....	s36.35	36.85	38.40	39.05	c40.75	41.40	qs49.50	.....	53.00	c55.00	55.70	c57.80	c62.70	63.35	c65.90	cs 85.60	cs89.15
	T.T.T. Non-Skid	s19.80	s21.45	s23.30	27.00	s28.05	32.00	34.80	.....	.....	s40.25	41.00	42.65	43.45	c45.30	46.00	qs52.10	.....	55.80	c58.00	58.60	c60.70	c65.95	66.70	c69.30	cs90.20	cs93.90
	Gray Tubes	3.20	3.35	3.50	3.75	3.95	4.00	4.20	4.35	5.00	5.10	5.40	5.50	5.60	5.80	5.90	6.80	7.00	7.05	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.85
	Red Tubes	3.50	3.70	3.90	4.15	4.35	4.40	4.60	4.85	5.50	5.55	5.95	6.05	6.15	6.40	6.50	7.55	7.70	7.75	7.85	8.00	8.20	9.40	9.50	9.80	10.40	10.90
RACINE	Plain	14.20	15.20	17.70	18.70	19.75	21.75	26.25	28.45	30.00	28.70	29.25	31.25	32.05	32.90	33.45	39.60	40.45	41.75	42.35	43.75	46.15	51.50	53.00	54.50	68.95	71.25
	Country Road	16.55	17.75	20.85	21.55	22.60	25.50	28.75	33.00	35.15	33.00	34.75	36.80	37.35	37.70	38.05	47.50	48.40	49.10	51.35	52.15	54.20	62.00	63.50	65.00	81.40	83.60
	Ribbed Cord	.....	.....	.....	.....	.....	39.80	.....	.....	.....	48.80	50.50	51.90	53.25	.....	.....	56.95	58.35	59.95	61.35	62.90	.....	74.60	76.30	78.00	92.50	94.60
	Non-Skid Cord	.....	.....	.....	.....	.....	42.35	.....	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.35	65.40	67.00	.....	79.40	81.40	83.20	98.60	100.85
	Gray Tubes	2.85	3.00	3.25	3.50	3.60	3.75	3.90	4.15	4.60	4.70	4.90	5.00	5.20	5.40	5.50	6.20	6.35	6.45	6.55	6.75	6.90	7.85	7.95	8.10	8.45	8.65
	Red Tubes	3.40	3.70	3.95	4.05	4.30	4.40	4.60	4.85	5.40	5.50	5.65	5.95	6.10	6.25	6.50	7.20	7.45	7.50	7.70	7.80	8.05	9.15	9.30	9.40	9.90	10.00
RACINE HORSESHOE	Plain	qs16.00	qs16.50	qs17.50	20.50	qs21.00	22.50	23.50	.....	qs28.50	qs26.50	28.50	29.00	29.50	31.00	31.50	qc36.50	qc36.50	36.50	38.00	39.00	40.00	44.00	45.00	46.00	cs65.00	cs66.00
	Non-Skid	qs17.00	qs17.50	qs19.50	21.50	qs22.00	24.00	27.00	.....	qs32.50	qs31.00	31.50	32.00	32.50	34.50	35.50	qc40.00	qc41.00	42.00	43.00	44.00	45.00	51.00	52.00	52.50	cs69.00	cs70.00
	Cord Non-Skid	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	qc46.50	qc47.50	48.50	.....	.....	.....	qc55.50	56.50	57.50	58.50	.....	68.50	.....	70.50	.....	cs78.50
	Gray Tubes	3.00	3.05	3.40	3.75	3.80	3.85	4.00	.....	4.70	4.75	4.85	5.00	5.15	5.45	5.50	6.15	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	8.75	9.25
	Red Tubes	.....	3.40	.....	4.25	4.35	4.45	.....	.....	.....	5.45	5.50	5.60	5.75	.....	6.25	.....	.....	7.50	7.75	7.80	7.90	8.80	8.95	9.25	9.50	9.75
RECORD	Ribbed Tread	.....	qs14.30	.....	qs18.35	.....	qc21.75	.....	.....	.....	qs28.50	qc29.20	c30.40	c31.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
REPUBLIC	Plain	qs14.15	qs15.20	qs19.30	19.30	qs20.75	22.50	25.65	s32.60	s34.45	s30.05	30.70	32.25	32.95	34.45	35.00	41.05	c42.30	43.75	45.80	46.40	48.35	53.65	54.35	56.85	s79.05	s78.25
	Staggard Non-Skid	qs16.60	qs17.70	qs22.50	22.55	qs24.40	26.40	29.95	s38.40	s40.25	s35.20	35.90	37.70	38.50	40.30	40.90	48.10	c49.50	51.15	53.60	54.30	56.60	62.75	63.65	66.55	92.50	89.00
	Gray Tubes	2.90	2.95	3.20	3.45	3.60	3.75	4.15	4.40	4.90	5.05	5.20	5.35	5.55	5.70	5.85	6.55	6.75	6.80	6.95	7.05	7.35	8.25	8.40	8.50	8.95	9.10
	Blackline Red Tubes	3.35	3.55	3.85	4.15	4.35	4.40	4.65	4.90	5.45	5.60	5.70	5.95	6.20	6.40	6.50	7.20	7.30	7.60	7.70	7.90	8.15	9.15	9.30	9.50	9.90	10.20
REVERE	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Anti-Skid Casings	15.25	14.50	.....	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	9.40
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	11.25
	Granite Tread	.....	16.40	.....	21.35	22.45	24.55	.....	.....	.....	33.50	34.10	35.90	36.65	.....	38.95	.....	47.15	48.75	50.95	51.70	53.85	57.85	.....	61.25	.....	.....
	Cord Casings	.....	.....	.....	.....	.....	39.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
REYNOLDS	Plain	.....	17.50	.....	21.90	.....	24.90	27.50	.....	.....	31.60	33.90	35.10	36.10	37.70	38.80	44.55	45.65	47.60	48.85	49.60	49.90	57.50	58.90	59.75	70.30	72.80
	Non-Skid	.....	24.40	.....	29.80	.....	31.60	34.65	.....	.....	40.10	41.45	42.70	44.60	45.70	46.80	54.80	55.90	57.75	58.45	59.70	60.90	67.70	68.50	69.75	90.50	93.25
	Para Tubes	.....	3.75	.....	5.25	.....	5.50	6.00	.....	.....	7.25	7.50	7.50	8.00	8.00	8.50	9.50	10.00	10.00	10.00	10.50	10.75	10.00	11.50	12.50	13.75	14.75
SAVAGE	Plain	qs12.00	qs12.65	16.45	qs16.05	qs16.85	18.40	20.45	c25.75	s26.65	qs23.80	24.70	25.60	26.05	27.25	28.50	.....	c34.90	c36.35	c37.60	c38.20	c39.40	c42.75	c43.25	c45.00	cs67.40	cs59.90
	Non-Skid	qs14.20	qs15.20	19.80	qs19.30	qs20.25	22.00	24.75	c29.80	s31.25	qs27.85	28.30	29.30	29.85	31.30	32.80	.....	c39.20	c41.40	c43.15	c43.95	c46.30	c46.45	c49.45	c51.15	cs77.10	cs68.20
	Grafinite Tubes	3.15	3.25	3.50	3.95	4.10	4.25	4.50	4.90	5.20	5.15	5.35	5.40	5.45	5.55	5.65	.....	6.55	6.80	6.90	7.15	7.30	8.05	8.30	8.40	9.90	10.05
SCHAVOIR	Gray Tubes	3.05	3.10	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.75	4.85	5.00	5.15	5.80	5.50	6.50	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	10.00	9.45
	Red Tubes	3.10	3.35	3.80	4.20	4.25	4.30	5.00	5.35	5.50	5.30	5.40	5.55	5.70	6.00	6.10	7.20	6.80	7.00	7.15	7.35	7.65	8.60	8.70	8.95	11.10	10.50
	Jumbo Red Tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.70	6.90	7.05	7.15	7.35	7.50	.....	8.40	8.80	9.05	9.20	9.40	10.90	11.10	11.25	.....	13.15
SEMPLE	Semco Red Tubes	3.60	3.75	3.90	4.50	4.60	4.75	5.05	.....	.....	6.05	6.20	6.40	6.60	6.75	6.95	7.95	8.20	8.35	8.50	8.70	8.90	9.85	10.05	10.35	11.00	11.30
SOUTHERN	Plain	qs12.80	qs13.20	.....	q17.00	qs18.10	20.10	c22.50	.....	.....	.....	qc27.25	c28.40	c29.00	c30.00	c30.45	.....	.....	.....	c41.10	c41.80	c43.10	.....	qc50.00	c51.70	.....	.....
	S Non-Skid	.....	qs14.70	.....	q19.50	.....	22.60	.....	.....	.....	28.70	qc30.10	c31.45	c32.20	.....	c33.65	cs42.60	.....	qc44.45	c46.10	c46.65	c48.25	qc54.85	.....	c57.65	.....	.....
	Red Tubes	3.45	3.70	.....	4.25	4.35	4.40	4.60	.....	.....	5.85	6.00	6.20	6.30	6.45	6.65	7.55	.....	7.75	7.90	8.00	8.20	9.15	9.30	9.45	.....	.....
SPEEDWAY	Non-Skid	.....	qs18.66	.....	qs23.33	.....	c30.00	c37.33	.....	.....	qs34.99	c36.40	c37.80	c39.20	.....	c42.00	.....	qc53.33	c53.33	c54.66	c56.00	qc59.33	qc68.60	qc70.00	qc70.00	.....	.....
	Red Tubes	4.33	4.46	.....	5.66	6.00	6.33	6.66	6.98	6.98	7.33	7.66	8.00	8.33	8.66	9.00	.....	9.69	9.85	10.08	10.40	10.77	12.00	12.66	13.33	14.66	15.33
STANDARD FOUR	Super Tread	14.10	14.70	.....	18.70	20.45	22.10	.....	.....	.....	29.10	29.65	31.35	31.85	.....	.....	.....	.....	43.65	45.20	45.95	47.80	53.20	.....	56.05	.....	.....
	Non-Skid	15.10	15.70	.....	20.00	.....	23.60	.....	.....	.....	31.55	32.10	33.90	35.40	.....	36.90	.....	.....	46.75	48.60	49.20	51.05	59.95	.....	63.10	.....	.....
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	3.95	.....	.....	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	10.80
STAR	Ribbed Tread	.....	qs22.00	.....	qs26.50	qs28.40	c30.45	.....	.....	.....	s37.50	qc39.20	qc40.50	c41.75	.....	.....	c48.90	qc50.50	c52.10	c53.70	c55.30	.....	c63.85	cs66.05	c68.25	cs86.00	.....
	All Star Non-Skid	.....	qs24.00	.....	qs20.00	.....	c32.10	.....	.....	.....	s39.70	qc41.00	qc42.25	c43.70	.....	c46.40	c50.25	qc51.85	c53.50	c55.00	c56.60	cs58.20	c66.00	cs68.20	c70.40	cs88.50	cs94.00
	Pure Gum Tubes	.....	3.65	.....	4.70	4.90	5.10	5.40	.....	.....	5.95	6.10	6.30	6.45	6.65	6.80	7.60	7.80	8.00	8.20	8.45	8.65	9.80	9.65	10.00	11.60	11.65
STERLING	Sterling High Bar Non-Skid	qs17.46	q20.80	.....	qs26.67	28.32	cs29.81	.....	.....	.....	34.76	c43.64	c45.10	c46.55	.....	s49.46	s58.19	c59.65	c61.10	c62.56	c64.00	c65.46	c72.73	c74.20	c77.10	s81.46	s84.38
	Sterling Seamless Red Tubes	3.71	3.97	4.28	5.40	5.50	5.66	6.05	6.31	6.29	6.47	6.59	6.83	7.02	7.14	7.38	8.11	8.40	8.65	8.89	9.13	9.44	10.46	10.70	10.89	12.46	12.83
STRONGHOLD	Plain	.....	17.20	.....	22.05	23.50	25.45	28.55	.....	.....	32.60	33.30	34.65	35.35	37.10	37.70	.....	41.15	42.35	43.70	44.90	46.15	52.30	53.85	55.30	.....	.....
	Stronghold Non-Skid	.....	18.85	.....	24.15	25.45	27.75	31.25	.....	.....	35.70	36.25	37.95	38.70	40.60	41.15	45.50	47.10	48.75	50.35	54.20	56.60	60.70	61.45	63.90	.....	.....
	Gray Tubes	.....	3.60	.....	4.40	4.45	4.55	4.85	.....	.....	5.90	6.05	6.30	6.50	6.70	6.90	7.70	7.90	8.05	8.20	8.35	8.60	9.65	9.80	10.05	.....	.....
	Red Tubes	.....	3.95	.....	4.80	4.85	5.00	5.20	.....	.....	6.55	6.75	6.95	7.10	7.30	7.55	8.25	8.40	8.55	8.70	9.10	9.25	10.40	10.55	10.75	.....	.....
SWINEHART	Plain	qs14.00	qs15.10	qs19.20	s19.20	qs20.60	22.40	25.40	s28.50	.....	qs29.85	30.50	32.00	32.70	c34.25	34.75	s40.80	s42.00	43.45	c45.45	46.15	cs48.10	c53.30	s54.10	56.50	cs79.05	cs74.20
	Ribbed	qs15.70	qs16.80	qs21.35	s21.35	qs23.00	25.00	28.30	s31.70	.....	qs33.30	34.00	35.70	36.45	c38.10	38.70	s45.45	s46.90	48.40	c50.60	51.40	cs53.60	c63.50	s64.35	67.20	cs92.40	cs88.00
	Non-Skid	qs16.40	qs17.60	qs22.40	s22.40	qs24.15	26.25	29.75	s33.35	.....	qs34.90	35.70	37.45	38.30	c40.05	40.65	s47.70	s49.30	50.80	c53.15	53.95	cs56.30	c66.65	s67.60	70.55	cs97.25	cs92.65
	Tubes	2.90	3.00	3.20	3.40	3.55	3.60	3.80	3.95	.....	4.70	4.85	5.00	5.10	5.20	5.30	6.20	6.30	6.35	6.45	6.60	6.80	7.75	7.90	8.05	8.40	8.60
TEN BROECK	Plain	qs12.39	qs13.09	qs16.63	q16.56	qs17.39	19.16	21.37	.....	.....	qs25.60	25.99	27.19	27.69	28.77	29.09	.....	.....	c38.00	39.46	39.90	41.42	s46.55	s47.11	s47.68	.....	cs64.00
	Non-Skid	qs13.91	qs14.86	.....	q19.48	qs20.42	22.26	25.16	.....	qs29.21	qs30.48	31.05	32.63	33.33	34.91	35.47	.....	.....	c43.13	45.19	45.72	46.46	cs51.16	s51.98	54.14	.....	cs74.56

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Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	36x5	36x5	37x5	37x5½	38x5½
[illegible]																										
[illegible] (Continued) Ribbed		qs14.86		q19.48	qs20.42	22.26				qs30.48	31.06	32.63	33.33					43.13	45.19			s51.16	s51.96			s74.56
Gray Tubes	3.03	3.14	3.32	3.56	3.66	3.75	3.92	4.11	4.77	4.89	5.08	5.20	5.32	5.44	5.56	6.46		6.65	6.77	6.89	7.07	8.10	8.22	8.40	9.00	9.13
THERMOID Non-Skid and Ribbed Tread	qs24.70	qs34.85		qs31.25	qs33.40	c35.90	c39.00		qs43.60	qs43.35	c44.85	c46.15	c47.80	48.50	c51.60	c57.50	qc55.95	c57.20	c59.65	c63.25	c65.10	c72.55	sc75.00	c77.75	sc96.05s	c103.05	
Brown and DeLuxe Red Tubes	q3.80	3.85		4.90	5.00	5.15	5.45		6.10	6.20	6.30	6.40	6.60	6.80	7.00	8.00	8.15	8.30	8.45	8.75	9.10	10.00	10.20	10.50	12.10	12.40
[illegible]																										
TYRIAN Plain	qs14.30	s16.00	cs17.60	s20.00	qs21.15	c23.05	c26.10		cs29.00	qs30.60	c31.35	c32.90	c33.65	c35.15	c35.70			c44.70	c46.70	c47.35	c49.30	c52.00	c52.85	c55.25	cs73.80	cs76.10	
Holdtite Non-Skid	qs15.60	s17.30	cs18.85	s22.10	qs 23.25	c25.10	c28.15		cs31.80	qs33.30	c34.05	c35.65	c36.30	c37.90	c38.45			c48.10	c50.10	c50.75	c52.75	c55.50	c56.25	c58.65	cs79.90	cs82.25	
Extra Heavy Red	3.55	3.70	3.85	4.25	4.35	4.40	4.80		5.60	5.75	5.90	6.10	6.20	6.40	6.65			8.00	8.20	8.45	8.55	9.70	10.10	10.25	11.30	11.50
UNITED STATES Plain	13.25	13.80	16.85	17.95	18.85	20.80	27.15	30.25	33.75	27.45	28.00	29.30	30.05	36.20	31.90	43.80	39.15	40.40	42.25	42.90	44.65	48.20	56.25	51.10	76.90	91.45
Usco Non-Skid	15.25	14.50	17.70	18.80	19.80	21.85	28.45			28.80	29.35	30.80	31.50	38.00	33.50	46.00	41.10	42.45	44.35	45.05	46.85	50.60	59.05	53.70	80.70	
Chain Non-Skid	16.50	16.40	19.95	21.35	22.45	24.55	31.90	35.60	41.10	33.40	34.10	35.90	36.65	44.15	38.95	52.70	47.15	48.75	50.95	51.70	53.85	57.85	67.65	61.25	91.45	109.70
Nobby Non-Skid	20.70	22.10	28.30	28.70	30.25	33.00	43.05	47.80	49.20	40.00	40.80	42.85	43.65	49.85	46.60	68.20	55.20	57.10	59.65	60.50	63.05	70.20	71.35	74.30	98.30	100.50
Royal Cord Non-Skid						39.45					50.15	51.40	52.85		55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40		83.50
Gray Tubes	2.85	3.00	3.15	3.75	3.85	4.00	4.30	4.50	4.70	4.85	5.00	5.15	5.25	5.45	5.65	6.15	6.40	6.45	6.60	6.85	7.10	8.00	8.15	8.30	9.25	9.40
Red Tubes	3.65	3.75	4.00	4.65	4.80	4.90	5.35	5.45	5.85	6.00	6.05	6.15	6.25	6.55	6.65	7.90	8.00	8.10	8.25	8.40	8.50	9.65	9.90	10.10	11.10	11.25
VICTOR Plain	17.10	18.05		22.25		25.85				34.55	35.15	36.70	37.30	38.90	39.30			46.50	48.00	48.85	50.70			60.60		
Ribbed		18.90		23.45		27.20				36.25	37.90	38.50	39.20					48.90	50.95	51.40		60.65	61.45	63.75		
Non-Skid	19.10	20.25		25.15	28.15	28.85				38.72	39.40	41.10	41.90	43.55	44.00	53.10	53.35	53.90	55.00	57.75	59.75	68.00	68.75	71.40	91.45	92.40
Victor Gray Tubes	3.10	3.30		3.85	4.15	4.25				5.20	5.30	5.45	5.60	5.85	6.00	6.80	6.95	7.10	7.25	7.45	7.60	8.50	8.65	8.85	9.35	9.65
Victor Red Tubes	3.40	3.60		4.25	4.80	4.90				5.75	5.95	6.10	6.30	6.45	6.60	7.70	7.75	7.90	8.15	8.30	8.45	9.40	9.60	9.80	10.60	10.75
Springfield Tubes	4.25	4.50		5.55	5.70	5.80				6.75	6.90	7.10	7.25		7.55		8.85	9.05	9.30	9.50	9.70	10.55	10.80	11.00	12.80	13.45
Springfield Red Tubes	4.60	4.85		6.00	6.10	6.20				7.30	7.40	7.60	7.75		8.15		9.60	9.80	10.05	10.25	10.45	11.40	11.60	11.90	13.90	14.55
VITALIC Non-Skid		qs15.50		qs20.10		q23.55				qs30 80	qc31.45	32.85	33.70						47.40	48.30	50.35	qc54.20		57.35		
Red and Gray Tubes	3.75	3.85	4.00	4.60	4.75	4.85	5.10	5.25	5.95	6.05	6.15	6.25	6.40	6.50	6.60	7.80	7.90	8.05	8.15	8.30	8.45	9.90	10.00	10.20	11.85	12.10
Extra Heavy Gray Tubes	4.25	4.35	4.60	5.15	5.35	5.50	5.85	6.00	6.70	6.80	7.05	7.20	7.35	7.55	7.70	8.80	8.95	9.15	9.30	9.45	9.70	11.35	11.55	11.75	13.50	14.05
VULCAN Gray Tubes	3.30	3.35		4.15	4.25	4.40	5.20			5.40	5.55	5.70	5.85	6.25	6.30			7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
Indian Red Tubes	3.65	3.70		4.60	4.65	4.80	5.75			5.95	6.15	6.30	6.45	6.90	6.95			7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
WILSON Wearwell Plain	q12.55	q12.20		q15.85		q18.55					q24.75		q26.50													
Wearwell Non-Skid	q13.15	q12.80		q16.60	q17.55	q19.45				q25.45	q26.00	27.15	q27.85													
Wearwell Gray Tubes	3.10	3.05		3.75	3.80	3.85				4.75	4.85	5.00	5.15	5.80	5.50			6.25	6.45	6.65	6.90	7.80	8.60	8.10	9.25	
Wearwell Red Tubes	3.40	3.35		4.20	4.25	4.30				5.30	5.40	5.55	5.70	6.45	6.10			7.00	7.15	7.35	7.65	8.70	9.50	8.95	10.30	
Wilson Non-Skid										qc49.25		qc53.90							qc65.45		qc67.75	cs78.75		c82.55	qc90.00	
Wilson Gray Tubes	3.40	3.35		4.20	4.25	4.30				5.30	5.40	5.55	5.70	6.45	6.15			7.00	7.15	7.35	7.60	8.50	8.70	8.85	9.40	
Wilson Red Tubes	3.70	3.65		4.80	4.85	4.90				6.00	6.05	6.10	6.20	7.09	6.79			7.70	7.85	8.05	8.35	9.35	9.55	9.75	10.40	
WOODWORTH Plain	23.90	25.30		32.60	33.25	36.30	39.90			46.85	47.90	49.90	51.00		53.95	61.15		65.00	66.20	68.75	70.90	81.50	82.40	85.80		
Non-Skid	25.75	27.90		34.90	36.45	38.80	43.95			49.90	53.40	55.25	56.80		59.80	64.15		68.75	70.10	73.35	74.80	85.75	86.70	90.10		
Tubes	3.90	4.00		4.40	4.55	4.65	4.95			6.35	6.60	6.70	6.80	6.90	7.10			8.65	8.90	9.20	9.40	10.00	10.35	10.55		
ZEE-ZEE "Z" Tread		18.82		21.67		24.12				32.83	34.37	35.61	36.39	37.71	38.89	47.52	48.42	49.33	50.09	52.04	53.70	56.22	57.95	58.86	72.90	78.26
Tubes	3.81	4.11	4.35	4.71	4.83	4.93	5.05		6.04	6.16	6.28	6.57	6.80	6.89	7.06	8.10	8.29	8.41	8.45	8.59	8.95	10.67	10.76	11.23	12.44	13.04
Climax		10.50		11.70	12.50	13.25				14.25	15.25	16.45	17.40													
Zee-Zee		14.10		18.25	19.30	21.40				28.00	28.60	29.85	30.65			38.90	40.10	41.30	43.10	43.90	44.60	49.25	52.15			

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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These Tables are for your constant consultation and should be of great value in the conduct of your business—

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MOTOR WORLD GUIDE

Trucks

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES			MOTOR																		TRANSMISSION																				BRAKES		Steering Gear
				Kind	Sizes in Ins. Front	Sizes in Ins. Rear	Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL SYS. Carbureter Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	
A & B	3T	$4500	144	s.	48x3½d	48x3½d	own	3	4–5½x4½	42.8	2	l.		p.	d.	Bosch	h.	G-E			None	1200	20	Schblr.	g.	s.		none	own	elect	amid.	2	28.0	own	Perf	Franck	int-g.	rad-rd.	rad-rd.	ext-r-w.	ex-f-w.	Gemr.
A & B	5T	4750	144	s.	48x3½d	48x5d	own	3	4–5½x4½	42.8	2	l.		p.	d.	Bosch	h.	G-E			None	1200	18	Schblr.	g.	s.		none	own	elect	amid.	2	28.0	own	Perf	Franck	int-g.	rad-rd.	rad-rd.	ext-r-w.	ex-f-w.	Gemr.
Acason	B	2100	150	s.	34x3½	36x5	Wauk	4	3½x5½	22.5	2			p.	s.	Eismn	h.	L*	cnt	motor	Wauk	1500	18	Stmbg	v.	s.	dp.	B&Bek.	Covert	selec	unt-m.	3	7.75	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acason	H2	2400	150	s.	34x4	36x7*	Wauk	3	4–4½x5½	29.0	2	l.		p.	s.	Eismn	h.	L*	cnt	motor	Wauk	1200	15	Schblr.	v.		dd.	Muncie	Muncie	selec	unt-m.	4	7.75	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acason	L	3½	3000	166	s.	34x5	36x5d	Wauk	3	4–4½x5½	29.0	2	l.		p.	s.	Eismn	h.	L*	cnt	motor	Wauk	1200	12	Schblr.	v.		dd.	Muncie	Muncie	selec	unt-m.	4	10½	Timkn	Dtrt	od	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acason	M	5	4200	172	s.	36x6	40x6*	Wauk		4–4½x6½	36.2	2			p.	s.	Eismn	h.	L*	cnt	motor	Wauk	1000	10	Stmbg	v.	s.	dp.	B&Bek.	Cotta	selec	unt-m.	3	11⅞	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acason Light Tractor			2500	114	s.	34x4	36x7*	Wauk		4–4½x5½	29.0	2	l.		p.	s.	Eismn	h.	L*	cnt	motor	Wauk	1200	15	Schblr.	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	9½	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acason Heavy Tractor			3800	130	s.	34x5	36x6d	Wauk		4–4½x6½	36.2	2	l.		p.	s.	Eismn	h.	L*	cnt	motor	Wauk	1000	10	Stmbg	v.	s.	dp.	B&Bek.	Cotta	selec	unt-m.	3	10½	Timkn	Dtrt	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acme	B	1	1900	130	s.	34x3	34x4	Cont	3	4–3½x5	22.5	4	l.		t.	s.	Eismn	h.	l, G&D	cnt	motor	Pierce	1700	22	Rayfld	v.		dp.	B&Bek.	Cotta	selec	unt-m.	3	7.75	Timkn	Dtrt		worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acme	A	2	2600	148	s.	36x4	36x6	Cont	3	4–4½x5½	27.2	4	l.		p.	s.	Eismn	f.	l, G&D	cnt	motor	Pierce	1350	17	Rayfld	v.		dp.	B&Bek.	Cotta	selec	unt-m.	3	8.50	Timkn	Dtrt		worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Acme	C	3½	3500	168	s.	36x5	40x5d	Cont	3	4–4½x5½	32.4	2	l.		p.	s.	Eismn	h.	l*	cnt	shaft	Pierce	1200	14	Rayfld	v.		dp.	B&Bek.	Cotta	selec	amid.	3	12.0	Timkn	Dtrt		worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Acme	D	4	3900	168	s.	36x5	40x5d	Cont	3	4–4½x5½	32.4	2	l.		p.	s.	Eismn	h.		cnt	motor	Pierce	1200	12	Rayfld		s.	dp.	B&Bek.	Cotta	selec	amid.	3	13.6	Timkn	Dtrt		worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
American	30	3½	3450	158	s.	36x5	36x5d	Cont		4–4½x5½	32.4	2			p.	s.	Eismn	h.	l*	cnt	motor	Pierce	1143	14	Stmbg	g.		dp.	Detlaf	Covert	selec	amid.	4	8.75	Shldn	Perf	Evans	worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Armleder	HW	2	2750	148	s.	36x4	36x7	Cont	3	4–4½x5½	27.2	4	l.		p.	s.	Eismn	h.	l*	cnt	shaft	Pierce	1200	15	Schblr.	g.	s.	dp.	B&Bek.	Covert	selec	unt-m.	3	8.5	Timkn	Mthr	Spicer	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Armleder	KW	3½	3600	156	s.	36x5	36x5d	Cont	3	4–4½x5½	32.4	2	l.		p.	s.	Eismn	h.	l*	cnt	shaft	Pierce	1000	12	Schblr.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	8.75	Timkn	Mthr	Spicer	worm	rad-rd.	sprgs.	int-r-w	ext-sht	Gemr
Atlas	18	¾	885	106	p.	31x4	31x4	Lycmg	2	4–3½x5	16.9	4	l.		t.	s.	Remy	h.	Remy			None	600	30	Carter	g.	s.	d.	B&Bek.	Covert	selec	unt-m.	3	4.7	Hess	Rolnd	Arvac	sp-bv	sprgs.	sprgs.	ext-r-w	int-r-w	Lvine
Atterbury	7R	1½	2275	140½	s.	36x3½	36x5	Cont	3	4–4½x5½	27.2	4	l.		p.	s.	Eismn	f.		cnt	motor	Pierce	1200	15	Zenith	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	4	8.5	Timkn	Sp-Prch	Spicer	worm	sprgs.	sprgs.	int-r-w	int-r-w	Gemr
Atterbury	7C	2	2675	153½	s.	36x3½	36x4d	Cont	3	4–4½x5½	27.2	4	l.		p.	s.	Eismn	f.		cnt	motor	Pierce	1200	15	Zenith	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	4	8.5	Timkn	Sp-Prch	Spicer	worm	sprgs.	sprgs.	int-r-w	int-r-w	Gemr
Atterbury	7D	3½	3575	167½	s.	36x5	40x5d	Cont	3	4–4½x5½	32.4	4	l.		p.	d.	Eismn	h.		cnt	motor	Pierce	1125	13	Zenith	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	4	10.3	Timkn	Sp-Prch	Spicer	worm	sprgs.	sprgs.	int-r-w	int-r-w	Gemr
Autocar	21F	2	1815	97	s*	34x4*	34x5*	own	2	2–4½x4½	18.1		l.		p.	s.	Bosch*	f.							Stmbg		s.	dp.	own		prog	amid.	3	7.1	own			d-red.	sprgs.	sprgs.	int-r-w	ext-r-w	
Available	1	1	1775	132	s.	36x3½	36x5	Cont	3	4–3½x5	22.5	4	l.		t.	s.	Bosch	f.	None	none					Stmbg	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	7.0	Timkn	Tuthill	Spicer	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Available	2	2	2450	150	s.	36x4	36x7	Cont	3	4–4½x5½	27.2	4	l.		p.	s.	Bosch	f.	None	none					Stmbg	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	7.7	Timkn	Tuthill	Spicer	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Available	3	3½	3450	150	s.	36x5	40x5d	Cont	3	4–4½x5½	32.4	2	l.		p.	s.	Bosch	f.	None	cnt	motor	Pierce	1214	14	Stmbg	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	10.3	Timkn	Tuthill	Spicer	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Available	5	5	4500	168	s.	36x6	40x6d	Cont	3	4–4½x5½	32.4	2	l.		p.	s.	Bosch	f.	None	cnt	motor	Pierce	1175	12	Stmbg	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	11.7	Timkn	Tuthill	Spicer	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Avery	B	2	2700	128	s.	36x4	36x3½d			4–4½x5	36.1	1	l.		p.	d.	Eismn	a.		cnt	motor		1200	14½	Rayfld			dd.			selec	unt-js.	3	3.5				d-chn		rad-rd.			
Avery	B	3	3200	128	s.	38x5	38x4d			4–4½x5	36.1	1	l.		p.	d.	Eismn	a.		cnt	motor		1200	13	Rayfld			dp.			selec	unt-js.	3	3.5				d-chn		rad-rd.			
Avery	A	3	2500	140	s.	38x5	38x4d			4–4½x5	36.1	1	l.		p.	d.	Eismn	a.		cnt	motor		1200	12	Rayfld			dd.			selec	unt-js.	3	3.5				d-chn		rad-rd.			
Barber Tractor		6	2500	84	s.	34x3½	34x7	Buda		4–4½x5½	29.0	4	l.		p.	s.	Bosch	h.						13	Stmbg		s.	d.	Fuller	Fuller	selec				own			worm	sprgs.	sprgs.	int-r-w	ext-r-w	Ross
Beck	A	1	1180	124	s.	34x3	34x4	Cont		4–3½x5	19.6	2	l.		p.	s.	Bosch	f.	l Vesta	cnt	motor	Pierce	2000	18	Stmbg	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	6.0	Clark	Hig	Blood	int-g.	sprgs.	sprgs.	ext-r-w	int-r-w	Lvine
Beck	B	1½	1440	124	s.	34x3	34x5	Cont		4–3½x5½	19.6	4	l.		p.	s.	Bosch	f.	l, Vesta	cnt	motor	Pierce	2000	18	Stmbg	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	6.0	Clark	Hig	Blood	int-g.	sprgs.	sprgs.	ext-r-w	int-r-w	Lvine
Beck	C	2	1860	144	s.	34x4	34x6	Cont		4–4½x5½	28.9	2	l.		p.	s.	Bosch	f.	l, Vesta	cnt	motor	Pierce	1500	12	Stmbg	g.		dd.	Fuller	Fuller	selec	unt-m.	3	9.0	Clark	Hig	Blood	int-g.	sprgs.	sprgs.	ext-r-w	int-r-w	Lvine
Beech Creek	3A	3	3850	132	s.	36x6	36x6	Wauk	3	4–4½x5½	29.0	2	l.		p.	s.	Eismn	h.		cnt	motor	Wauk	1000	12	King	v.	s.	dp.	B-Bek	own	selec	amid.	6	8.0	own			bevl-4.	rad-rd.	sprgs.	ext-r-w	ext-sht	own
Bessemer	G	1	1250	124	s.	34x3	34x4	Cont	3	4–3½x5	19.6	4	l.		t.	s.	Dixie	h.				none	1350		Zenith	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	7.0	Torbn	Perf	Blood	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Ross
Bessemer	J	2	*2200	158*	s.	36x4	36x4d	Cont	3	4–4½x5½	27.2	4	l.		p.	s.	Dixie	h.		cnt	motor	Pierce	1100	15	Rayfld	g.	s.	c.	Hart	B-Lipe	selec	amid.	3	8.0	Torbn	Perf	Spicer	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Ross
Bessemer	D	2	2550	140*	s.	36x4	36x4d	Cont	3	4–4½x5½	27.2	4	l.		p.	s.	Dixie	h.		cnt	motor	Pierce	1100	15	Rayfld	g.	s.	c.	Hart	B-Lipe	selec	amid.	3	7.75	Timkn	Perf	Blood	worm	sprgs.	sprgs.	int-r-w	int-r-w	Ross
Bessemer	E	3½	3450	150	s.	36x5	36x5d	Cont	3	4–4½x5½	32.4	2	l.		p.	s.	Dixie	h.		cnt	motor	Pierce	1160	12	Rayfld	g.	s.	c.	Hart	B-Lipe	selec	amid.	3	10.3	Timkn	Perf	Spicer	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Bethlehem		1½	1245	126	s.	34x3	34x4	G.B.S.	3	4–3½x4½	22.5	4	l.		t.	s.	Brlng	h.		cnt	d-shft	Pierce	1300	18	Schblr	g.	s.	d.	Dtroit	Dtroit	selec	unt-m.	3	7.4	Russl	Shel	Univ	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine
Bethlehem		2½	1775	144	s.	34x4	34x6	NoAm	3	4–4 x4½	25.6	2	l.		t.	s.	Brlng	h.		cnt	d-shft	Pierce	1100	15	Schblr	g.	s.	d.	Dtroit	Dtroit	selec	unt-m.	3	8.3	Russl	Shel	Univ	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine
Bethlehem Tractor		5	1865	120	s.	34x4	34x6	NoAm	3	4–4 x4½	25.6	2	l.		t.	s.	Brlng	h.		cnt	d-shft	Pierce	1100	15	Schblr	g.	s.	d.	Dtroit	Dtroit	selec	unt-m.	3	8.3	Russl	Shel	Univ	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine
Blair	C	2	2850	121*	s.	34x4	34x3½d	Wauk	3	4–4½x5½	29.0	2	l.		p.	d.	Bosch	f.	Eismn	cnt	motor	Wauk	1060	14	Zenith	g.	s.	c.	Wabash	own	id-c.	amid.	3	7.6	Kestone	Sheldon	Ther	worm	sub-f	sub-f.	int-r-w	ext-sht	Lvine
Blair	D	3	3250	121*	s.	36x5	66x4d	Wauk	3	4–4½x5½	29.0	2	l.		p.	d.	Bosch	f.	Eismn	cnt	motor	Wauk	970	12	Zenith	g.	s.	c.	Wabash	own	id-c.	amid.	3	8.6	Kestone	Sheldon	Ther	worm	sub-f.	sub-f.	int-r-w	ext-sht	Lvine
Blair	F	5	4250	144*	s.	36x6	36x6d	Wauk	3	4–4½x6½	32.4	2	l.		p.	d.	Bosch	a.	Eismn	cnt	motor	Wauk	870	10	Zenith	g.	s.	c.	Wabash	own	id-c.	amid.	3	9.3	Kestone	Sheldon	Ther	worm	sub-f.	sub-f	int-r-w	ext-sht	Lvine
Bourne Magnetic	VM	2	3500	143	s.	36x4	36x8	Hercl	3	5 5-4 x5½	25.6	1	l.		p.	s.	Eismn	f.	s, l Entz	cnt	motor	Simplx	1280	15	Zenith	g.	s.		Entz	Entz		unt-m.		8 50	Timkn	Mthr	Blood	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Bourne Magnetic	XM	3½	4200	160	s.	36x5	36x10	Hercl	3	5 5-4½x5½	29.0	1	l.		p.	s.	Eismn	f.	s, l Entz	cnt	motor	Simplx	1100	12	Zenith	g.	s.		Entz	Entz		unt-m.		10.3	Timkn	Mthr	Blood	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross
Brinton	H	1	1250	125	p.	33x4½	33x4½	Wis	2	4–3½x5	16.9	4	l.		p.	s.		f.	l			None				h.	s.	dd.			selec	unt-m.	3	6.2				worm		sprgs.	int-f-w	int-r-w	
Brinton	F	2½	2500	140	s.	36x4*	36x6*	Cont	3	4–4½x5½	27.2	4	l.		p.	s.	Bosch	f.	l	cnt	motor	Pierce				g.	s.	dd.			selec	unt-m.	3	7.75									
Briscoe	4–24	½	675	104	p.	31x4	31x4	own	2	4–3 7/16x5½	16.3	4	l.		t.	s.	Conn	h.	s, 1A-Lite						DBuick	g.	d.	c.	own	own	selec	unt-x.	3	4.2	own		own	bevel	t-arm	t-arm	int-r-w	ext-r-w	own
Briscoe	T-24	1	1000	132	ps	31x4	34x3½	own	2	4–3 7/16x5½	16.3	4	l.		t.	s.	Conn	h.	s, 1 A-Lite						DBuick	g.	d.	c.	own	own	selec	unt-j-s	3	9.0	own		own	chain	rad-rd.	tor-a	int-r-w	ext-j-s	own
Brockway	J-3	1½	2450	140	s.	36x3½	36x5	Cont	3	4–3½x5	22.5	4	l.		p.	s.	Eismn	f.		suc	motor	Mnrch	1200	15	Schblr	g.	s.	c.	Hart	B-Lipe	selec	amid.	3	8.6	Sheldon	Merrill	Spicer	worm	sprgs.	sprgs.	int-r-w	int-r-w	Gemr
Brockway	K-3	2	2850	148	s.	36x4	36x7	Cont	3	4–4½x5½	27.2	4	l.		p.	s.	Eismn	f.		suc	motor	Mnrch	1200	15	Schblr	g.	s.	c.	Hart	B-Lipe	selec	amid.	3	8.5	Timkn	Merrill	Spicer	worm	sprgs.	sprgs.	int-r-w	int-r-w	Gemr
Brockway	R	3½	3750	164	s.	36x5	36x5d	Cont	3	4–4½x5½	32.4	2	l.		p.	s.	Eismn	h.	l	suc	motor	Mnrch	1100	12	Schblr	g.	s.	dd.	B-Lipe	B-Lipe	selec	amid.	3	10.5	Timkn	Merrill	Spicer	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Gemr
Buick		½	790	106		31x4	31x4	own		4–3½x4½	18.2	4	l.		p.	s.	Delco	h.	s, l Delco						Marvel	v.		dd.	own	own	selec	unt-m.		4.08	Timkn			bevel			int-r-w	ext-r-w	
Chase	A	1	1725	138	s.	36x3½	36x5	Wauk	3	4–3½x5½	19.6	4			p.	s.	Bosch	f.		cnt	motor	Mnrch	1200	18	Stmbg	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	7.2	Sheldon	Perf		worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Chase	C	1½	2025	149	s.	36x3½	36x6	Wauk	3	4–3½x5½	19.6	4			p.	s.	Bosch	f.		suc	motor	Mnrch	1000	16	Stmbg	g.		dp.	B&Bek.	Cotta	selec	unt-m.	3	8.6	Sheldon	Perf		worm	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine
Chase	B	2½	2475	160	s.	36x4	36x4d	Buda	3	4–4½x5½	27.2	4			p.	s.	Bosch			suc	motor	Mnrch	1000	14	Stmbg	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	8.66	Sheldon	Perf		worm	sprgs.	sprgs.	int-r-w	ext-r-w	Lvine
Chase	X	3	2800	160	s.	36x4	36x5d	Buda	3	4–4½x5½	27.2	4			p.	s.	Bosch	f.		suc	motor	Mnrch	1000	12	Stmbg	g.		dd.	B-Lipe	B-Lipe	selec	unt-m	3	9.25	Slshy	Perf		worm	sprgs.	sprgs.	int-r-w	int-r-w	Lvine
Chase	O	3½	3600	175	s.	36x5	36x5d	Cont*	3	4–4½x5½	32.4	2	l.		p.	s.																												
Chase	Q	4	3600	175	s.	36x5	36x5d	Cont*	3	4–4½x5½	32.4	2	l.		p.	s.	Bosch	h.	s, lDynto	suc	motor	Mnrch	1000	12	Stmbg	g.	s.	d.	B-Lipe	B-Lipe	selec	unt-m	4	8.75	Sheldon	Perf		worm	sprgs.	t-arm	ext-r-w	ext-r-w	Lvine

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES: Kind	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	MOTOR: Make Engine	MOTOR: No. of Crankshaft Bearings	MOTOR: Cylinders Bore and Stroke	MOTOR: S. A. E. Hp.	MOTOR: Cylinders Cast	MOTOR: Valves Placed	MOTOR: Spark Plug	MOTOR: Cooling—Water Circulation	MOTOR: IGNITION Type	MOTOR: IGNITION Make	MOTOR: IGNITION Spark Advance	MOTOR: Electric System—Type and Make	MOTOR: GOVERNOR Type	MOTOR: GOVERNOR Drive	MOTOR: GOVERNOR Make	MOTOR: SPEED Motor in r. p. m.	MOTOR: SPEED Truck in m.p.h.	MOTOR: FUEL SYS. Carburetor Make	MOTOR: FUEL SYS. Fuel Feed	MOTOR: FUEL SYS. Tank Location	TRANSMISSION: CLUTCH Type	TRANSMISSION: CLUTCH Make	TRANSMISSION: GEARSET Make	TRANSMISSION: GEARSET Type	TRANSMISSION: GEARSET Location	TRANSMISSION: GEARSET Speeds	TRANSMISSION: Total Gear Reduction in High	TRANSMISSION: Rear Axle	TRANSMISSION: Springs, Make	TRANSMISSION: Universals, Make	TRANSMISSION: Final Drive	TRANSMISSION: Propulsion Taken By	TRANSMISSION: Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
Garford.....77-B	3½	3900	128*	s.	36x5	40x5d	Wis...	4	4-4½x6	29.0	4	l..	..	p.	d.	Bosch..	h.	s, lWest..	cnt.	motor.	own....	1050	12	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	10.3	.....	Perf...	Spicer..	worm.	rad-rd.	sprgs..	ext-sht.	int-r-w.	Ross...
Garford.....68	5	4700	128*	s.	36x6	40x6d	Wis...	3	4-4½x5½	36.1	2	t.	..	p.	d.	Bosch..	h.	West.....	cnt.	motor.	own....	1250	9	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j..	4	13.3	.....	Perf...	Spicer..	d-chn.	rad-rd.	.....	int-r-w.	ext-sht.	Ross...
Garford.....69	6	4900	128*	s.	36x6	40x7d	Wis...	3	4-5 1/16x5½	41.6	2	t.	..	p.	d.	Bosch..	h.	West.....	cnt.	motor.	own....	1100	8	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j..	4	13.3	.....	Perf...	Spicer..	d-chn.	rad-rd.	.....	int-r-w.	int-sht.	Ross...
Garford Tractor.....	4½	3100	116	s.	36x4	36x4d	Buda..	3	4-4½x5½	29.0	4	l..	..	p.	s.	Bosch..	h.	West.....	suc.	.....	Mnrch.	1200	...	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	3	9.25	Timkn.	Perf...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Garford Tractor.....	7	4000	105	s.	36x5	40x5d	Wis...	3	4-4½x5½	36.1	2	t.	..	p.	d.	Bosch..	h.	West.....	cnt.	.....	own....	1050	...	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	12.0	Timkn.	Perf...	Spicer..	worm.	rad-rd.	sprgs..	ext-sht.	int-r-w.	Ross...
Garford Tractor.....	10	4800	102	s.	36x6	40x6d	Wis...	3	4-5 1/16x5½	41.6	2	t.	..	p.	d.	Bosch..	h.	West.....	cnt.	.....	own....	1350	...	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j..	4	13.3	own....	Perf...	Spicer..	d-chn.	rad-rd.	sprgs..	int-r-w.	ext-sht.	Ross...
Gary.....F	1	.....	130	s.	36x3½	36x4	Buda*	..	4-3½x5½	22.5	4	l..	..	t.	s.	Eismn..	f..	Vesta*...	suc.	motor.	Mnrch.	1275	15	Stmbg*	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.8	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Gary.....G	1½	.....	144	s.	36x3½	36x5	Buda..	..	4-4½x5½	28.9	4	l..	..	p.	s.	Eismn..	f..	Vesta....	cnt.	motor.	Simplex	1275	15	Stmbg*	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.75	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Gary.....H	2½	.....	156	s.	36x4	36x6	Buda..	..	4-4½x5½	28.9	4	l..	..	p.	s.	Eismn..	f..	Vesta....	cnt.	motor.	Simplex	1275	15	Stmbg*	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.75	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Gary.....HU	3½	.....	162	s.	36x4	36x7	Buda..	..	4-4½x5½	28.9	4	l..	..	p.	s.	Eismn..	a.	Vesta....	cnt.	motor.	Simplex	1275	15	Stmbg*	g.	s.	dd.	Fuller..	Fuller.	selec	unt-m.	3	8.75	Sheldon	Tuthill.	Hart...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Gary.....K	4	.....	162	s.	36x5	36x5d	Buda..	..	4-4½x6	32.4	4	l..	..	p.	s.	Eismn..	a.	Vesta....	cnt.	duplex	Duplex.	1200	12	Stmbg..	g.	s.	dd.	Warner	Warner	selec	amid.	4	8.75	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
G. A. Schacht.....	2	2950	141	s.	36x3½	36x6	Buda..	3	5-4½x5½	29.0	4	l..	..	p.	s.	Bosch..	h.	.....	cnt.	motor.	own....	900	16	Schblr..	g.	s.	c..	Hart...	own....	selec	amid..	3	7.75	Timkn.	Natl...	Hart...	worm.	rad-rd.	t-arm.	int-r-w.	ext-r-w.	Barns..
G. A. Schacht.....	2½	3300	156*	s.	36x4	36x4d	Buda..	3	5-4½x5½	29.0	4	l..	..	p.	s.	Bosch..	h.	.....	cnt.	motor.	own....	900	14	Schblr..	g.	s.	c..	Hart...	own....	selec	amid..	3	8.5	Timkn.	Natl...	Hart...	worm.	rad-rd.	t-arm.	int-r-w.	ext-r-w.	Barns..
G. A. Schacht.....	3½	3700	168*	s.	36x5	36x5d	Buda..	3	5-4½x5½	29.0	4	l..	..	p.	s.	Bosch..	h.	.....	cnt.	motor.	own....	900	12	Schblr..	g.	s.	c..	Hart...	own....	selec	amid..	3	10.3	Timkn.	Natl...	Hart...	worm.	rad-rd.	t-arm.	int-r-w.	ext-r-w.	Barns..
G. A. Schacht.....	5	4700	168	..	36x5	40x6d	Buda..	..	.....	....	..	..	..	..	..	Bosch..	h.	.....	cnt.	motor.	own....	....	10	Schblr..	..	..	..	Hart...	own....	selec	amid..	..	14.0	Timkn.	Natl...	Hart...	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	Barns..
Gem.....	½	675	....	p.	31x4	31x4	GB&S	3	4-3½x4½	22.5	4	l..	..	t.	s.	Conn..	h.	s, lDynto.	....	.....	.....	.....	...	Carter..	..	s.	dd.	GB&S..	G-Lees.	selec	unt-m.	3	4-1	W-W...	.....	.....	bevel..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Fostr...
Geneva.....1	½	.....	96	s.	34x2	36x2½	Beavr.	..	2-5½x4½	22.1	1	l..	½	..	s.	Simms.	f..	None....	.....	.....	None..	1200	18	Schblr..	g.	s.	dp.	Warner.	.....	plan	unt-j..	2	4.0	Sheldon	Sheldon	Spicer..	d-chn.	rad-rd.	rad-rd.	int-r-w.	int-r-w.	.....
Globe.....	1	1425	132	s.	34x3½	34x4	Cont..	3	4-3½x5	19.6	4	l..	..	p.	s.	Eismn..	f..	None....	cnt.	motor.	Pierce..	1385	20	Master.	v.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	7.0	Clark..	Sheldon	Univ...	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Globe.....	1½	1750	144	s.	36x3½	36x5	Cont..	..	4-3½x5½	22.5	4	l..	..	p.	s.	Eismn..	f..	None....	cnt.	motor.	Pierce..	1385	20	Master.	v.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	7.0	...	Sheldon	Univ...	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Globe.....	2	2050	154	s.	36x4	36x6	Cont..	..	4-4½x5½	27.2	4	l..	..	..	s.	Eismn..	f..	None....	cnt.	motor.	Pierce..	1385	20	Master.	v.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	7.0	Clark..	Sheldon	Univ...	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
G.M.C.....16	¾	1395	132	p.	35x5	35x5	Cont..	3	4-3½x5	22.5	4	l..	½	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1150	20	Marvel.	g.	s.	dd.	own....	own....	selec	unt-m.	3	6.0	W Mott	W Mott	Univ...	bevel..	rad-rd.	sprgs..	int-r-w.	ext-r-w.	Jacox..
G.M.C.....21	1	1950	136	s.	34x3½	34x5	Cont..	3	4-3½x5	22.5	4	l..	½	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1380	18	Marvel.	g.	s.	dd.	own....	own....	selec	unt-m.	3	7.7	Timkn.	Dtrt...	Univ...	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Lvine..
G.M.C.....31	1½	2350	144*	s.	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l..	½	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1300	15	Marvel.	g.	s.	dd.	own....	own....	selec	unt-m.	4	9.2	TDB...	Dtrt...	Univ...	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Lvine..
G.M.C.....41	2	2690	158*	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l..	½	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1200	14	Marvel.	g.	s.	dd.	own....	own....	selec	unt-m.	4	9.2	TDB...	Dtrt...	Univ...	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Lvine..
G.M.C.....71	3½	3750	163*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	½	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1210	12	Marvel.	g.	s.	dd.	own....	own....	selec	amid..	4	12.0	TDB...	Dtrt...	Univ...	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Lvine..
G.M.C.....101	5	4350	163*	s.	36x6	40x6d	Cont..	3	4-4½x5½	32.4	2	l..	½	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1210	10	Marvel.	g.	s.	dd.	own....	own....	selec	amid..	4	13.6	TDB...	Dtrt...	Univ...	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Lvine..
Gramm-Bernstein....	1	1900	124*	s.	34x3½	34x4	Wauk.	3	4-3½x5½	22.5	4	l..	½	p.	s.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1300	20	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid..	3	6.5	Sheldon	Sheldon	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w	Ross...
Gramm-Bernstein....	1½	2300	130*	s.	34x3½	36x5	Wauk.	3	4-3½x5½	22.5	4	l..	½	p.	s.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1200	17	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid..	3	7.75	Sheldon	Sheldon	.....	worm.	sprgs..	sprgs..	int-r-w.	ext-r-w	Ross...
Gramm-Bernstein....	2	2600	146	s.	34x4	34x3½d	Wauk.	3	4-3½x5½	22.5	4	l..	½	p.	s.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1200	16	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid..	3	8.6	Sheldon	Sheldon	.....	worm.	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ross...
Gramm-Bernstein....	2½	3150	156	s.	36x4	36x4d	Wauk.	3	4-4½x5½	29.0	2	l..	½	p.	d.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1150	16	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid..	3	7.7	Sheldon	Sheldon	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Gramm-Bernstein....	3½	3800	158*	s.	36x5	40x5d	Wauk.	3	4-4½x5½	32.5	2	l..	½	p.	d.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1100	16	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid..	4	8.7	Sheldon	Sheldon	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Gramm-Bernstein....	5	4700	168*	s.	36x6	40x6d	Wauk.	3	4-4½x6	36.1	2	l..	½	p.	d.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1050	11	Zenith..	g.	s.	c..	own....	own....	id-c.	amid..	4	9.5	Sheldon	Sheldon	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Grant Denmo.....15	2	1790	124	s.	34x3½	34x5	Cont..	3	4-3½x5	22.5	4	l..	½	t..	s.	Dixie...	..	s z Remy.	cnt.	d-shft.	Pierce..	1400	14	Stewart	g.	s.	dp.	B&Bek.	G-Lees.	selec	unt-m.	3	9.0	Torbn..	Cooper.	Arvac..	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Grant Denmo.....16	.....	.....	(140	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grant Denmo.....10	1½	1490	(124	ps	34x4½*	34x4	Cont..	3	4-3½x5	22.5	4	l..	½	t.	s.	Dixie...	..	s, l Remy	cnt.	d-shft.	Pierce..	1400	20	Stewart	g.	s.	dp.	B&Bek.	G-Lees.	selec	unt-m.	3	7.0	Torbn..	Cooper.	Arvac..	int-g..	sprgs..	sprgs..	ext-r-w.	ent-r-w.	Lvine..
Grant Denmo.....11	.....	.....	(140	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
G ant Denmo.....12	¾	960	115	p.	32x4	32x4	HerSp	2	4-3½x5	16.9	4	l..	½	t.	s.	Dixie...	..	s, l Bijur.	....	.....	none...	.....	...	Carter..	v.	s.	dp.	B&Bek.	G.Lees.	selec	unt-m.	3	5.3	Torbn..	Cooper.	Arvac.	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ditwlr.
Hahn.....	½	1100	120*	s.	36x3	36x3½	Cont..	3	4-3½x5	14.4	4	l..	½	p.	d.	Eismn..	h.	.....	cnt.	motor.	Pierce..	1175	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Torbn..	.....	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Hahn.....	1½	1950	144*	s.	36x3½	36x3½d	Cont..	..	4-4½x5½	27.2	..	..	½	..	..	Bosch..	h.	.....	cnt.	motor.	Pierce..	980	15	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	.....	Spicer..	worm.	rad-rd.	t-arm.	.....	.....	Ross...
Hahn.....	3½	2900	148*	s.	36x5	36x5d	Cont..	..	4-4½x5½	32.4	..	..	½	..	..	.....	..	.....	.....	.....	.....	.....	...	.....	..	..	...	B-Lipe.	B-Lipe.	....	.....	..	....	Timkn.	.....	Spicer..	.....	.....	.....	.....	.....	Ross...
Hall.....	2	2350	144	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l..	½	p.	s.	Bosch*	f..	l, Bosch..	suc.	motor.	Mnrch.	1250	18	Zenith..	g.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	9.2	Timkn.	Dtrt...	K-B...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Hall.....	3½	3250	144	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l..	½	p.	s.	Bosch*	f..	l, Bosch..	suc*	motor.	Mnrch*	1200	15	Zenith..	g.	..	dd.	B&Bek.	B-Lipe.	selec	unt-m.	3	10.5	Timkn.	Dtrt...	K-B...	worm*	sprgs*	sprgs*	int-r-w.	int-r-w.	Gemr..
Hall.....	5–7	4200	144	s.	36x5	40x6d	Cont..	3	4-4½x5½	32.4	2	l..	½	p.	s.	Bosch*	f..	l, Bosch*..	suc*	motor.	Mnrch*	1200	12	Zenith..	g.	..	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	12.0	Timkn.	Dtrt...	K-B...	worm d-chn	sprgs. rad-rd.	sprgs.	int-r-w.	{int-r-w ext-j.s.	Gemr..
Harvey.....WFA	2½	2500	150	s.	36x4	36x7	Buda..	3	4-4½x5½	29.0	4	l..	½	p.	s.	Eismn..	a.	s, lWest..	cnt.	motor.	Duplex.	1000	16	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	7.75	Sheldon	Sheldon	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Harvey.....WHA	3½	3250	160*	s.	36x5	36x5d	Buda..	3	4-4½x6	32.4	4	l..	½	p.	s.	Eismn..	a.	s, lWest..	cnt.	motor.	Duplex.	1000	13	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	8.75	Sheldon	Sheldon	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Harvey.....WKA	5	4000	160*	s.	36x6	40x6d	Buda..	3	4-4½x6	32.4	4	l..	½	p.	s.	Eismn..	a.	s, lWest..	cnt.	motor.	Duplex.	1000	11	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	8.75	Sheldon	Sheldon	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Harvey Tractor...HT	7	4000	125	s.	36x5	36x5d	Buda..	3	4-4½x6	32.4	4	l..	½	p.	s.	Eismn..	a.	s, lWest..	....	.....	.....	1000	11	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	8.75	Sheldon	Sheldon	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Hawkeye.....H	1½	1750	136*	s.	34x3½	34x5	Buda..	..	4-3½x5½	22.5	4	..	..	t.	s.	Eismn..	h.	s, l West*.	....	.....	Duplex.	1500	15	Master.	v.	s.	dp.	B&Bek.	G-Lees.	selec	unt-m.	3	7.00	Clark..	Tuthill.	Univ...	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Hendrickson.....G	2	.....	....	s.	36x4	36x4	Wauk.	..	4-4½x5½	29.0	2	..	..	p.	s.	Dixie..	h.	.....	suc.	motor.	Wauk..	1000	15	Stmbg..	g.	..	dd.	Fuller..	Fuller..	.....	unt-m.	..	7.75	Timkn.	Tuthill.	.....	worm.	rad-rd.	tor-a..	ext-r-w.	ext-r-w.	Ross...
Hendrickson.....H	3½	3000	....	s.	36x5	36x5d	Wauk.	..	4-4½x5½	32.4	2	..	..	p.	s.	Dixie..	h.	l	cnt.	motor.	Wauk..	1100	14	Stmbg..	g.	..	dd.	B&Bek.	Cotta..	prog	unt-m.	3	10.3	Timkn.	Tuthill.	.....	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
Hercules.....	2	2600	150	s.	34x4	36x4d	Cont..	3	6-3½x5½	29.4	4	..	..	p.	s.	Dixie...	f..	s, l West..	suc.	motor.	Mnrch.	1100	16	Rayfld.	g.	s	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.2	own....	Sheldon	M-Eva.	worm.	rad-rd.	sprgs.	int-sht.	int-r-w.	Ross...
Hercules.....	3	3000	160	s.	34x4	36x5d	Cont..	3	6-3½x5½	29.4	4	..	..	p.	s.	Dixie...	f..	s, l West..	suc.	motor.	Mnrch.	1100	14	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	10.3	own....	Sheldon	.....	worm.	rad-rd.	sprgs.	int-sht.	int-r-w.	Ross...
Hercules.....	4	3800	160	s.	36x5	40x5d	Cont..	3	6-3½x5½	33.8	3	..	..	p.	s.	Dixie...	f..	s, l West..	suc.	motor.	Mnrch.	1100	13	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	11½	own....	Sheldon	.....	worm.	rad-rd.	sprgs.	int-sht.	int-r-w.	Ross...
Hercules.....	5	4500	168	s.	36x5	40x6d	Cont..	3	6-3½x5½	33.8	4	..	..	p.	s.	Dixie...	f.	s, l West..	suc.	motor.	Mnrch.	1100	12	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	12¾	own....	Sheldon	.....	worm.	rad-rd.	sprgs.	int-sht.	int-r-w.	Ross...
Highway.....A	5	.....	93	s.	34x4	36x4	Cont..	..	4-3½x5	22.0	4	..	..	p.	s.	Dixie..	h.	.....	.....	.....	.....	.....	...	Schblr..	g.	..	dd.	B&Bek.	Warner	selec	unt-m.	..	13.4	own....	.....	.....	int-g..	tor-a..	tor-a..	int-f-w.	ext-r-w.	own...
Higrade.....A-18	1	1800	115	p.	35x5	35x5	Cont..	3	4-3½x5	19.6	4	l..	..	..	..	Simms..	..	s, l Lc-Nv.	....	.....	Simplex	....	20	Zenith..	g.	s.	p..	Fuller.	Fuller.	id-cl	unt-m.	3	4.56	Sheldon	.....	.....	worm.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine..
Hoover.....	¾	1350	120	p.	32x4	33x4½	Cont..	3	4-3½x5	19.6	4	l..	..	t.	..	Dixie..	h.	None....	....	.....	None..	....	25	Schblr..	v.	c.	d..	Fuller.	Fuller.	selec	unt-m.	3	6.2	Sheldon	Seldn..	Acme..	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Horner.....	1½	2600	145	s.	36x4	36x4	.....	3	4-4½x5½	27.2	4	..	½	p.	d.	.....	h.	.....	cnt.	motor.	.....	.....	...	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	.....	3	....	.....	Perf...	.....	worm.	rad-rd.	.....	int-r-w.	int-r-w.	Ross...
Horner.....	2	2750	145	s.	36x4	36x3½d	.....	3	4-4½x5½	27.2	4	..	½	p.	d.	.....	h.	.....	cnt.	motor.	.....	.....	...	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	.....	..	....	.....	Perf...	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Horner.....	3	3550	145	s.	36x5	40x4d	Cont..	3	4-4½x5½	32.4	2	t.	½	p.	d.	.....	h.	.....	cnt.	motor.	.....	.....	...	.....	g.	..	dd.	B-Lipe.	B-Lipe.	selec	.....	3	9.4	own....	Perf...	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Horner.....	5	4750	156	s.	38x6	42x6d	Cont..	3	4-5½x5½	44.2	2	t.	½	p.	d.	.....	h.	.....	cnt.	motor.	.....	.....	...	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	3	13.4	own....	Perf...	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Hurlburt.....1	1½	2600	136*	s.	34x4	34x5	Buda..	3	4-3½x5½	22.5	4	l..	½	p.	s.	Eismn..	l..	l, Vesta...	cnt.	motor.	.....	1375	18	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.25	own....	Merl...	.....	worm.	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ross...
Hurlburt.....2	2	3500	148*	s.	36x4	36x4d	Buda..	3	4-4½x5½	29.0	4	l..	½	p.	d.	Eismn..	l..	l, Vesta...	cnt.	motor.	Pierce..	1300	16	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	own....	Merl...	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	Ross...
Hurlburt.....3	3½	4130	156*	s.	36x5	36x5d	Buda..	4	4-4½x6	32.4	4	l..	½	p.	d.	Eismn..	l..	l, Vesta...	cnt.	motor.	Pierce..	1050	13	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	own....	Merl...	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	Ross...
Hurlburt.....5	5	5000	156*	s.	36x5	40x6d	Buda..	4	6-3½x5½	33.8	6	l..	½	p.	d.	Eismn..	l..	l, Vesta...	cnt.	motor.	Pierce..	1360	12	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	3	10.3	own....	Merl...	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	Ross...
Hurlburt.....7	7	6500	156*	s.	36x6	40x7d	Buda..	3	6-3½x5½	33.8	6	l..	½	p.	d.	Eismn..	l..	l, Vesta...	cnt.	motor.	Pierce..	1360	12	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	13.0	own....	Merl...	.....	worm.	rad-rd.	t-arm.	int-r-w.	int-sht.	Ross...
Independent.....F	1	1385	128*	s*	36x3*	36x4*	Cont..	3	4-3½x5	19.6	4	..	½	p.	s.	Eismn..	f..	s, lJesco..	suc.	motor.	Mnrch.	1350	...	Marvel.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	.....	.....	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Independent.....G	2	1850	144	s.	36x3½	36x5	Cont..	..	4-4½x5½	27.2	4	..	½	p.	s.	Eismn..	f..	.....	suc.	motor.	Mnrch.	....	...	Marvel.	g.	s.	dd.	.....	.....	selec	unt-m.	3	....	.....	.....	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	.....

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheel base in inches	TIRES: Kind	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	MOTOR: Make Engine	MOTOR: No. of Crankshaft Bearings	MOTOR: Cylinders Bore and Stroke	MOTOR: S. A. E. Hp.	MOTOR: Cylinders Cast	MOTOR: Valves Placed	MOTOR: Spark Plug	MOTOR: Cooling—Water Circulation	MOTOR: IGNITION Type	MOTOR: IGNITION Make	MOTOR: IGNITION Spark Advance	MOTOR: Electric System—Type and Make	MOTOR: GOVERNOR Type	MOTOR: GOVERNOR Drive	MOTOR: GOVERNOR Make	MOTOR: SPEED Motor in r.p.m.	MOTOR: SPEED Truck in m.p.h.	MOTOR: FUEL SYS. Carbureter Make	MOTOR: FUEL SYS. Fuel Feed	MOTOR: FUEL SYS. Tank Location	TRANSMISSION: CLUTCH Type	TRANSMISSION: CLUTCH Make	TRANSMISSION: GEARSET Make	TRANSMISSION: GEARSET Type	TRANSMISSION: GEARSET Location	TRANSMISSION: Speeds	TRANSMISSION: Total Gear Reduction in High	TRANSMISSION: Rear Axle	TRANSMISSION: Springs, Make	TRANSMISSION: Universals, Make	TRANSMISSION: Final Drive	TRANSMISSION: Propulsion Taken By	TRANSMISSION: Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
Menominee.....H	1½	2050	144*	s.	36x3½	36x5	Cont..	3	4-3¾x5½	22.5	4	l.	..	p.	s.	Eismn..	h.	.....	cnt.	d-shft.	own....	800	15	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.25	Timkn.	Tuthill.	Sp cer..	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Gemr..
Menominee.....D	2	2475	144*	s.	36x4	36x6*	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn..	h.	.....	cnt.	d-shft.	own....	750	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.25	Timkn.	Tuthill.	Blood..	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Gemr..
Menominee.....G	3½	3275	160*	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Eismn..	h.	.....	....	.....	own....	750	12	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	selec	amid..	3	10.3	Timkn.	Titanic.	Blood..	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Gemr..
Menominee.....	5	4150	160	..	36x6	36x6d	Cont..	..	4-4½x5½	32.4	..	l.	..	p.	..	Eismn..	..	.....	....	.....	.....	.....	..	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	amid..	3	14.4	Timkn.	Titanic.	Acme..	worm.	rad-rd.	sprgs..	.....	.....	Gemr..
Modern.....30	...	1800	132	s.	34x3½	34x5	Cont..	..	4-3¾x5	22.5	4	..	..	p.	d.	x.....	f..	.....	*	*	*	.....	..	Zenith..	..	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	....	Timkn.	.....	.....	worm.	rad-rd.	sprgs.	ext-r-w.	ext-r-w.	Ross...
Moreland.....17-N	1	2750	126	s.	34x3½	34x4	Cont..	3	4-3¾x5	22.5	4	l.	..	t.	s.	Dixie..	h.	l, West...	cnt.	motor.	Pierce..	1200	19	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.0	Timkn.	own....	Ther..	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17-B	1½	2750	126*	s.	36x3½	36x5	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Dixie..	h.	l, West...	cnt.	motor.	Pierce..	1140	17	Master*	g.	s.	dd.	own....	own....	selec	amid..	4	7.0	Timkn.	own....	Ther..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17-C	2½	3375	144*	s.	36x4	36x7	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Dixie..	h.	l, West...	cnt.	motor.	Pierce..	1090	16½	Master*	g.	s.	dd.	own....	own....	selec	amid..	4	6.8	Timkn.	own....	Ther..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17-G	4	4150	162*	s.	36x5	40x5d	Wauk.	3	4-4½x6½	36.2	2	l.	..	p.	d.	Dixie..	h.	l, West...	cnt.	motor.	Wauk..	950	14	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	7.8	Timkn.	own....	Ther..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17-J	5	5000	180*	ps	36x6	40x6d	Wauk.	3	4-4½x6½	36.2	2	l.	..	p.	d.	Dixie..	h.	l, West...	cnt.	motor.	Wauk..	950	12	Master*	g.	..	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	8.8	Timkn.	own....	Ther..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moon.....B	1½	1650	140*	s.	36x3½	36x5*	Cont..	3	4-3¾x5½	22.5	4	l.	..	p.	d.	Remy*..	..	.....	....	.....	none...	1800	18	Stmbg..	g.	s.	c.	Hart..	Muncie	selec	unt-j..	3	....	Sheldon	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	int-r-w.	Warner
Muskegon.....20	2	1995	144	s.	36x4	36x6	Cont..	..	4-4½x5½	27.2	4	..	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce..	1230	16	Stwrt..	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.0	Torbn..	.....	.....	int-g..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Lvine..
Nash.....2017	1	1495	130	s.	34x3	34x4	own...	3	4-3¾x5½	22.5	4	l.	..	p.	s.	Delco..	..	s, l Bijur..	cnt.	motor.	Simplex	1345	20	Stmbg..	g.	s.	dp.	B&Bek.	Dtrt..	selec	unt-m.	3	6.8	Clark..	.....	.....	int-g..	sprgs..	sprgs..	ext-sht.	ext-r-w.	.....
Nash.....4017	2	3250	124*	s.	36x5	36x5	Buda..	3	4-4½x5½	29.0	4	l.	..	p.	s.	Dixie..	h.	s, l Bijur..	cnt.	motor.	Simplex	1190	15	Stmbg..	g.	s.	dp.	B&Bek.	own....	selec	amid..	4	8.5	own....	.....	.....	int-g-4	sprgs..	sprgs..	ext-sht.	int-4-w.	.....
Nash.....3017	2	1875	144	s.	34x4	34x6	own...	3	4-3½x5½	22.5	4	l.	..	p.	s.	Delco..	h.	s, l Bijur..	cnt.	motor.	Simplex	1290	16	Stmbg..	g.	s.	dp.	B&Bek.	own....	selec	unt-m.	3	8.1	Clfor...	.....	.....	int-g..	sprgsr..	sprgs.	ext-sht.	ext-r-w.	.....
Nelson & LeMoon.E1	1½	1900	opt.	s.	36x3½	36x5	Cont..	3	4-3½x5½	22.5	4	l.	..	p.	s.	Bosch..	h.	s, l West..	suc.	motor.	Mnrch.	1100	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Nelson & LeMoon.E2	2	2250	opt.	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	d.	Bosch..	h.	s, l West..	suc.	motor.	Mnrch.	1100	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Nelson & LeMoon.E3	3	2950	opt.	s.	36x5	38x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	d.	Bosch..	h.	s, l West..	suc.	motor.	Mnrch.	1100	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.7	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Nelson & LeMoon.E5	5	3750	opt.	s.	36x6	40x6d	Buda..	3	4-4½x6	32.4	4	..	..	p.	d.	Bosch..	h.	s, l West..	suc.	motor.	Mnrch.	1050	11	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	11.3	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Netco.....D	2	2800	144*	s.	36x4	36x6	Cont..	3	4-4¾x5½	27.2	4	l.	..	p.	s.	Eismn..	f..	s, l G&D..	....	.....	none...	1800	15	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.5	Timkn.	.....	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross...
Netco.....E	2	3200	144*	s.	36x4	36x6	Cont..	3	6-3¾x5½	33.8	6	l.	..	p.	d.	G&D...	h.	s, l G&D..	....	.....	none...	.....	..	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	prog	unt-m.	3	8.5	Timkn.	.....	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross...
New York.....M	1½	2200	144*	s.	36x3½	36x5	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch..	f..	None....	cnt.	motor.	Pierce.	1400	18	Stmbg..	g.	s.	dp.	B&Bek.	Cotta	id-c.	unt-m.	3	7.7	Timkn.	.....	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	.....
New York.....N	2	2600	144	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch..	f..	None....	cnt.	motor.	Pierce.	1100	15	Stmbg..	g.	s.	dp.	B&Bek.	Cotta	id-c.	unt-m.	..	.....	Timkn.	.....	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr..
Niles.....B	1	1500	124	p.	35x5	35x5	Cont..	3	4-3½x5	19.6	4	l.	..	t.	s.	Eismn..	h.	.....	cnt.	motor.	Pierce.	1573	25	Stmbg..	g.	s.	dd.	Covert.	Covert.	selec	unt-m.	3	6.5	Timkn.	.....	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr..
Niles.....E	2	2400	140*	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Pierce.	1173	15	Stmbg..	g.	s.	dp.	B&Bek.	Covert.	selec	amid..	3	8.5	Timkn.	.....	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr..
Noble.....NW	2	2300	148	s.	36x4	36x6	Cont..	..	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Pierce.	1300	16	Stmbg..	v.	s.	dp.	B&Bek.	Cotta..	id-c.	unt-m.	3	8.75	Sheldon	Kal...	Blood..	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross...
Norwalk.....	1	1350	130	p.	31x4	31x4s	Lycmg	.....	.....	.....	..	..	..	..	..	Delco..	..	s, l Dynt..	....	.....	.....	.....	..	.....	..	..	....	.....	.....	.....	.....	3	....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Old Hickory.....M	¾	875	112	p.	33x4	33x4	Lycmg	2	4-3½x5	16.9	4	l.	..	t.	s.	Conn...	h.	s, l Dynt..	....	.....	None..	960	16	Carter..	g.	s.	c.	Lycmg.	G-Lees.	selec	unt-m.	3	6.0	Salsby..	Tuthill.	Own..	bevel.	tor-t.	tor-t.	int-r-w.	ext-r-w.	C.A.S...
Old Reliable.....	1½	1950	150*	s.	34x3½	36x6	Wis..	3	4-3¾x5	22.5	4	l.	..	p.	s.	Bosch..	h.	l.....	....	.....	.....	.....	..	Stmbg..	g.	d.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	.....	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Old Reliable.....	2	2450	150	s.	34x4	36x4d	Wis..	4	4-4x6	25.6	4	l.	..	p.	s.	Bosch..	h.	l.....	cnt.	duplx.	Duplex.	.....	..	Stmbg..	g.	d.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Old Reliable.....	2½	2750	....	s.	34x4	36x4d	Wis..	3	4-4½x5	29.0	2	t.	..	p.	s.	Bosch..	h.	.....	....	.....	.....	.....	..	Stmbg..	g.	s.	dd.	.....	DSOC..	selec	unt-j..	3	....	SA&P..	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	ext-j-s.	Ross...
Old Reliable.....	3	3250	150	s.	34x5	36x5d	Wis..	4	4-4½x6	29.0	4	l.	..	p.	s.	Bosch..	h.	l.....	cnt.	duplx.	Duplex.	.....	..	Stmbg..	g.	..	dd.	.....	B-Lipe.	selec	unt-m.	3	8.7	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Old Reliable.....	4	3750	....	s.	36x5	40x5d	Wis..	3	4-4½x5½	36.2	2	t.	..	p.	s.	Bosch..	h.	l.....	cnt.	duplx.	Duplex.	.....	..	Stmbg..	g.	..	dd.	.....	B-Lipe.	selec	amid..	4	8.7	Sheldon	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Old Reliable.....	4	3750	....	s.	36x6	36x6d	Wis..	3	4-4½x5½	36.2	2	t.	..	p.	s.	Bosch..	h.	l.....	....	.....	.....	.....	..	Stmbg..	g.	s.	d.	.....	.....	selec	amid..	3	....	Sheldon	.....	.....	d-chn.	rad-rd.	.....	ext....	int....	Ross...
Old Reliable.....	5	4500	150*	s.	36x6	36x6d	Wis..	3	4-4½x5½	36.2	2	t.	..	p.	s.	Bosch..	h.	l.....	cnt.	duplx.	Duplex.	.....	..	Stmbg..	g.	s.	d.	DriSe.	.....	selec	amid..	3	....	.....	.....	.....	d-chn.	rad-rd.	.....	ext-r-w.	int-j-s.	.....
Old Reliable.....	7	5000	150	s.	36x6	40x7d	.....	3	4-5 1/16x5½	41.6	2	t.	..	p.	s.	Bosch..	h.	l.....	cnt..	duplx.	Duplex.	.....	..	Stmbg..	g.	..	d.	.....	.....	selec	unt-j..	4	.....	.....	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	ext-j-s.	.....
Oneida.....A	1	2290	130	s.	36x3½	36x5	Cont..	..	4-3¾x5½	22.5	4	..	..	p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Duplex.	980	16	Stmbg..	g.	..	d.	H-Shaw	Cotta..	id-c.	amid..	3	8.7	Timkn.	Mather.	.....	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
Oneida.....B	1½	2650	130	s.	36x3½	36x5	Cont..	..	4-3¾x5½	27.2	4	..	..	p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Duplex.	1040	15	Stmbg..	g.	..	d.	H-Shaw	Cotta..	id-c.	amid..	3	9.2	Timkn.	Mather.	.....	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
Oneida.....C	2	3000	144	s.	36x4	36x4d*	Cont..	..	4-4½x5½	27.2	4	..	..	p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Duplex.	970	14	Stmbg..	g.	..	d.	H-Shaw	Cotta..	id-c.	amid..	3	9.2	Timkn.	Mather.	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Oneida.....D	3½	3600	160	s.	36x5	36x5d	Cont..	..	4-4½x5½	32.4	2	..	..	p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Duplex.	1150	12	Stmbg..	g.	..	d.	H-Shaw	Cotta..	id-c.	amid..	3	10.3	Timkn.	Mather.	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Overland.....Panel	¾	745	104	p.	31x4	31x4	own...	2	4-3¾x5	18.2	4	l.	..	t.	..	Conn...	h.	s, l A-Lite.	....	.....	none...	.....	..	Tltsn...	v.	d.	c.	own...	own...	selec	unt-x..	3	4.3	own...	.....	.....	bevel.	tor-t.	tor-t.	int-r-w.	ext-r-w.	own....
Overland.....Express	¾	880	106	p.	33x4½	33x4½	own...	5	4-4½x4½	27.2	4	l.	..	t.	..	Conn...	h.	s, l A-Lite.	....	.....	none...	.....	..	Tltsn...	g.	s.	c.	own...	own...	selec	unt-x..	3	4.4	own...	.....	.....	bevel.	tor-t.	tor-t.	int-r-w.	ext-r-w.	own....
Packard.....1-E	1	2450	126*	s.	34x3½	34x6	own...	4	4-4x5½	25.6	4	l.	..	p.	d.	Dixie..	h.	s, l Bijur..	cnt.	motor.	own....	1000	16	own....	p.	s.	dd.	own....	own....	selec	amid..	4	6.25	own....	.....	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	own....
Packard.....1½-E	1½	2800	126*	s.	34x3½	34x3½d	own...	4	4-4x5½	25.6	4	l.	..	p.	d.	Dixie..	h.	s, l Bijur..	cnt.	motor.	own....	1000	16	own....	p.	s.	dd.	own....	own....	selec	amid..	4	6.25	own....	.....	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	own....
Packard.....2-E	2	3200	144*	s.	34x4	34x4d	own...	4	4-4x5½	25.6	4	l.	..	p.	d.	Dixie..	h.	s, l Bijur..	cnt.	motor.	own....	1000	14	own....	p.	s.	dd.	own....	own....	selec	amid..	4	7.25	own....	.....	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	own....
Packard.....3-E	3	3900	156*	s.	36x5	36x5d	own...	4	4-4½x5½	32.4	4	l.	..	p.	d.	Dixie..	h.	s, l Bijur..	cnt.	motor.	own....	1000	12	own....	p.	s.	dd.	own....	own....	selec	amid..	4	9.0	own....	.....	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	own....
Packard.....4-E	4	4375	156*	s.	36x5	40x5d	own...	4	4-4½x5½	32.4	4	l.	..	p.	d.	Dixie..	h.	s, l Bijur..	cnt.	motor.	own....	1000	12	own....	p.	s.	dd.	own....	own....	selec	amid..	4	10.0	own....	.....	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	own....
Packard.....5-E	5	4900	156	s.	36x6	40x6	own...	4	4-5 x5½	40.0	4	l.	..	p.	d.	Dixie..	..	l Bijur..	cnt.	motor.	own....	1000	11	own....	p.	s.	dd.	own....	own....	selec	amid..	4	10.7	own....	.....	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	own....
Packard.....6-E	6	5150	156	s.	36x6	40x7	own...	4	4-5 x5½	40.0	4	l.	..	p.	d.	Dixie..	h.	s, l Bijur..	cnt.	motor.	own....	1000	11	own....	p.	s.	dd.	own....	own....	selec	amid..	4	10.7	own....	.....	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	own....
Packet.....	1⅜	300	100	p.	28x3	28x3	Prugh.	2	4-2¾x4	12.1	4	l.	..	t.	s.	A.Kent.	a.	.....	....	.....	none...	1500	25	Carter..	g.	d.	....	own....	own....	fric.	unt-j..	3	4.2	own....	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	int-r-w.	own....
Palmer.....	1	1685	132½	s.	34x3½	34x4	Cont..	3	4-3¾x5	22.5	4	l.	..	t.	s.	Bosch..	f..	.....	....	.....	none...	.....	18	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	....	Torbn.	.....	.....	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ross...
Palmer.....	2	2495	144	s.	36x3½	36x3½d	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch..	f..	.....	cnt.	motor.	Pierce.	1000	15	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Timkn.	.....	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Pan-American.....	2½	2250	160	s.	36x4	36x6	Buda..	..	4-4½x5½	28.9	4	l.	..	p.	s.	Dixie..	h.	.....	suc.	.....	.....	1100	15	Stmbg..	v.	..	dd.	.....	.....	selec	unt-m.	3	.....	.....	.....	.....	int-g..	sprgs.	.....	int.....	ext-r-w.	Lvine..
Panhard.....	1	895	125	ps	32x3½	32x3½	Gray...	..	4-3x5	19	6	l.	..	t.	..	A-Lite..	..	l, A-Lite..	....	.....	.....	.....	..	Schblr..	v.	s.	dd.	Fuller..	Fuller..	.....	.....	..	6.5	Torbn.	.....	.....	int-g..	.....	.....	int-r-w.	ext-r-w.	.....
Panhard.....B	1½	1095	130	..	.....	32x4	.....	.....	.....	.....	..	..	..	..	..	.....	..	.....	....	.....	.....	.....	..	.....	..	..	..	.....	.....	.....	.....	..	8.0	Timkn	.....	.....	.....	.....	.....	.....	.....	.....
Peerless.....TC2	2	3000	145	s.	36x4	36x4d	own...	3	4-4½x6½	32.4	2	t.	m	p.	d.	Remy..	h.	.....	cnt.	motor.	own....	925	16	Stmbg..	g.	s.	c.	own....	B-Lipe.	selec	amid..	3	6.0	Torbn	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	own....
Peerless.....TC7	3	3700	151*	s.	36x4	40x4d	own...	3	4-4½x6½	32.4	2	t.	m	p.	d.	Remy..	h.	.....	cnt.	motor.	own....	925	14½	Stmbg..	g.	s.	c.	own....	own....	selec	unt-j..	4	7.4	own....	.....	.....	d-chn.	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own....
Peerless.....TC4	4	4000	151*	s.	36x5	40x5d	own...	3	4-4½x6½	32.4	2	t.	m	p.	d.	Remy..	h.	.....	cnt.	motor.	own....	925	12½	Stmbg..	g.	s.	c.	own....	own....	selec	unt-j..	4	8.7	own....	.....	.....	d-chn.	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own....
Peerless.....TC5	5	4500	151*	s.	38x6	42x6d	own...	3	4-4½x6½	32.4	2	t.	m	p.	d.	Remy..	h.	.....	cnt.	motor.	own....	925	11	Stmbg..	g.	s.	c.	own....	own....	selec	unt-j..	4	10.5	own....	.....	.....	d-chn.	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own....
Peerless.....TC6	6	5000	151*	s.	38x7	42x7d	own...	3	4-4½x6½	32.4	2	t.	m	p.	d.	Remy..	h.	.....	cnt.	motor.	own....	925	11	Stmbg..	g.	s.	c.	own....	own....	selec	unt-j..	4	10.5	own....	.....	.....	d-chn.	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own....
Pierce-Arrow.....	2	3750	150*	s.	36x4	36x4d	own...	3	4-4x5½	25.6	2	t.	m	p.	s.	Eismn*.	h.	.....	cnt.	motor.	own....	1050	16	own....	g.	s.	c.	own....	own....	selec	amid..	4	7.0	own....	.....	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	own....
Pierce-Arrow.....	5	5500	168*	s.	36x5	40x6d	own...	3	4-4½x6	38.3	2	t.	m	p.	d.	Bosch*.	h.	.....	cnt.	motor.	own....	950	14	own....	g.	s.	c.	own....	own....	selec	amid..	3	7.8	own....	.....	.....	worm.	rad-rd.	t-arm.	int-r-w.	ext-sht.	own....
Pullmore.....	3	3650	163	s.	36x6	36x6	Buda..	..	4-4½x6	32.4	4	l.	..	p.	s.	Eismn..	h.	West....	cnt.	motor.	Pierce.	1050	12	.....	v.	s.	....	B&Bek.	Warner	selec	unt-m.	3	9.9	own....	.....	.....	bevel.	rad-rd.	rad-rd.	int-r-w.	ext-d-s.	Ross...
Rainier.....	½	995	115	p.	33x4	33x4	.....	2	4-3½x4½	16.9	4	l.	..	t.	s.	Dixie..	h.	s, l Splitd.	....	.....	none...	2000	34	Zenith..	v.	s.	dp.	B&Bek.	G-Lees.	selec	unt-m.	3	5.8	Timkn.	Perf...	Hart..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Lvine..
Rainier.....	1½	1340	125	p*	.....	.....	.....	..	4-3¾x4½	16.9	..	l.	..	..	..	Dixie..	..	.....	....	.....	none...	.....	..	Zenith	v.	s.	....	B-Lipe.	B-Lipe.	selec	unt-m.	3	..	Hayes..	Perf...	Hart..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Rennoc.....	2½	3250	144	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rennoc Tractor.....	8	3250	116/	s.	36x5	36x7	Buda..	..	4-4½x5½	27.2	4	l.	..	p.	d.	Splitof.	h.	West...	cnt.	motor.	Pierce.	1200	18	Stmbg..	v.	s.	dd.	Warner	Warner	selec	amid..	4	8.6	sprgs...	Rolnd..	Hart..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Reo.....F	¾	1100	128	p.	34x4½	34x4½	own...	3	4-4½x4½	27.2	2	il.	½	p.	s.	Remy..	h.	s, l Remy.	.....	.....	none...	.....	.....	Johnsn.	g.	d.	dd.	own....	own....	selec	amid..	3	4.3	own....	.....	.....	sp-bv.	sprgs..	t-arm.	none...	se-r-w..	own....

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES: Kind	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	MOTOR: Make Engine	MOTOR: No. of Crankshaft Bearings	MOTOR: Cylinders Bore and Stroke	MOTOR: S. A. E. Hp.	MOTOR: Cylinders Cast	MOTOR: Valves Placed	MOTOR: Spark Plug	MOTOR: Cooling—Water Circulation	MOTOR: IGNITION Type	MOTOR: IGNITION Make	MOTOR: IGNITION Spark Advance	MOTOR: Electric System—Type and Make	MOTOR: GOVERNOR Type	MOTOR: GOVERNOR Drive	MOTOR: GOVERNOR Make	MOTOR: SPEED Motor in r.p.m.	MOTOR: SPEED Truck in m.p.h.	MOTOR: FUEL SYS. Carbureter Make	MOTOR: FUEL SYS. Fuel Feed	MOTOR: FUEL SYS. Tank Location	TRANSMISSION: CLUTCH Type	TRANSMISSION: CLUTCH Make	TRANSMISSION: GEARSET Make	TRANSMISSION: GEARSET Type	TRANSMISSION: GEARSET Location	TRANSMISSION: GEARSET Speeds	TRANSMISSION: Total Gear Reduction in High	TRANSMISSION: Rear Axle	TRANSMISSION: Springs, Make	TRANSMISSION: Universals, Make	TRANSMISSION: Final Drive	TRANSMISSION: Propulsion Taken By	TRANSMISSION: Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
fin.....SW	6	4650	168	s.	36x6	40x6d	Cont..	3	6-3¾x5½	33.8	3	l..	..	p.	s.	Bosch..	h.	s, lBosch.	cnt.	motor.	Pierce..	1000	10½	Schblr..	g.	s.	dp.	B&Bek.	Covert.	selec	amid..	3	13.0	Sheldon	.....	.....	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
an.....	5	5000	156	s.	36x6	40x6d	Buda..	..	4-4½x6	32.4	4	..	..	p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Simplex	1000	11	.....	g.	..	dp.	B&Bek.	Cotta..	id-c.	amid..	3	11.0	Clark..	Sheldon	.....	int-g..	rad-rd.	sprgs..	int....	int.....	Lvine..
ansport Tractor...N	5	2750	80	s.	34x3½	34x4d	.....	3	4-3½x5	22.5	4	l..	..	t.	s.	Bosch..	f.	.....	suc.	motor.	Mnrch.	....	12	Zenith..	g.	..	dd.	.....	.....	selec	unt-m.	4	....	.....	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	.....
angle.....A	1½	.....	144	s.	34x3½	34x6	Wauk..	..	4-3½x5½	22.5	4	..	..	p.	s.	Eismn..	f.	.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.0	Clark..	.....	.....	int-g..	sprgs..	sprgs..	ext-r-w.	ext-sht.	Gemr..
ion.....B	2½	2075	152	s.	39x4	39x6	Wis...	4	4-4x6	25.6	4	l..	..	p.	s.	Eismn..	h.	l*	cnt.	d-shft.	Simplex	1200	15	Schblr..	g.	d.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Russel..	Mthr...	.....	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ross...
ited.....BSW	2	2350	144*	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn..	h.	s, l	cnt.	motor.	Pierce..	1125	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	Sheldon	Tuthill.	Hart...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
ited.....CSW	3½	3150	144*	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	s, l*	cnt.	motor.	Pierce..	980	12	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.7	Sheldon	Sheldon	Hart...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
ited.....DSW	4	3450	144*	s.	36x5	36x6d	Cont..	3	4-4½x5½	32.4	2	t.	..	p.	s.	Eismn..	h.	s, l*	cnt.	motor.	Pierce..	980	12	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.7	Sheldon	Tuthill.	Hart...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
ited.....ESW	5	4250	144*	s.	36x6	40x6d	Wis...	3	4-4½x5½	41.6	2	t.	..	p.	s.	Eismn..	h.	s, l*	cnt.	d-shft.	Pierce..	897	10	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	11.7	Sheldon	Tuthill.	Hart...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
ited Tractor.....	6	2490	110	s.	34x3½	34x7	Buda..	..	4-4½x5½	27.2	4	l..	..	p.	s.	Bosch..	..	.....	.....	.....	.....	.....	...	Zenith..	g.	s.	...	Muncie	Muncie	selec	unt-m.	4	10.0	.....	.....	.....	int-g..	rad-rd.	.....	int-r-w.	int-r-w.	Ross...
S.....E	2½	2650	144*	s.	34x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1160	15	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid..	3	8.2	own....	Tuthill.	Hart...	d-chn.	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine..
S.....H	2½	2950	144*	s.	34x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1160	15	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid..	3	8.7	Sheldon	Sheldon	Hart...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
S.....D	3½	3350	156*	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1090	13	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid..	3	8.1	own....	Tuthill.	Hart...	d-chn.	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine..
S.....J	3½	3650	156*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1090	13	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid..	3	11.7	Sheldon	Sheldon	Hart...	worm.	rad-rd.	.....	int-r-w.	int-r-w.	Lvine..
S.....K	5	4550	168*	s.	36x5	40x6d	Wauk.	3	4-4½x6½	36.2	2	l..	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Wauk..	950	12	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	amid..	3	8.8	Sheldon	Sheldon	Hart...	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Lvine..
iversal.....G	1½	1950	133	*s	34x3½	34x5	Buda..	2	4-3½x5½	22.5	4	l..	..	t.	d.	Eismn..	..	.....	cnt.	motor.	own....	1160	15	Zenith..	g.	s.	dp.	B&Bek.	Covert.	selec	unt-m.	3	7.2	own....	.....	.....	worm.	rad-rd.	.....	int.....	int.....	Lvine..
iversal.....D	2	2800	132*	s.	36x4	36x4d	Buda..	3	4-4x5½	25.6	2	t.	..	p.	d.	Eismn..	h.	.....	cnt.	motor.	own....	1057	12	Zenith..	g.	s.	dd.	own....	own....	selec	amid..	3	9.1	own....	.....	.....	d-chn.	rad-rd.	.....	ext....	int.....	Lvine..
iversal.....A	3	3400	132*	s.	36x5	36x5d	Buda..	3	4-4x5½	25.6	2	t.	..	p.	d.	Eismn..	h.	.....	cnt.	motor.	own....	1057	12	Zenith..	g.	s.	dd.	own....	own....	selec	amid..	3	10.2	own....	.....	.....	d-chn.	rad-rd.	.....	ext-sht.	int-r-w.	Lvine..
lie.....25	2	2750	150*	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Bosch..	h.	s..Remy.	cnt.	motor.	Pierce..	1008	18	Stmbg..	v.	s.	dp.	own....	B-Lipe.	selec	amid..	4	7.7	Timkn.	Mthr..	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
lie.....26	3½	3600	172*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch..	h.	None....	cnt.	motor.	Pierce..	1215	15	Stmbg..	v.	s.	dp.	own....	B-Lipe.	selec	amid..	4	10.3	Timkn.	Mthr..	Spicer..	worm.	rad-rd.	sprgs..	int.....	int.....	Gemr..
n.....21	½	765	108	p.	31x4	31x4	own...	3	4-3x4½	14.4	4	l..	..	t.	s.	Dixie...	h.	l, Split..	....	.....	.....	....	25	Zenith..	g.	..	c..	own....	own....	selec	unt-m.	3	5.25	W-W...	Sheldon	Spicer..	bevel..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Jacox..
alter.....F	5	5000	156	s.	40x6	40x6d	own....	..	4-4½x6½	36.1	4	..	..	p.	s.	Eismn..	f..	s, l West..	....	motor.	own....	1000	...	H&N..	g.	..	dp.	own....	own....	selec	amid..	4	8.0	own....	Merl..	.....	int-g-4	sprgs..	sprgs..	int-r-w.	ext-sht.	own....
atson.....Tractor	5	4050	80	s.	36x4	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	d.	Bosch..	h.	.....	.....	cnt.	motor.	Pierce..	1100	11	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	11.6	Timkn.	Sheldon	Spicer..	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Gemr..
hite.....GBBE	¾	2300	133½	p.	34x4½	34x4½	own...	2	2-3¾x5½	22.5	4	l..	m	p.	s.	.....	h.	s, l*	.....	.....	none..	.....	...	own...	g.	s.	p..	own....	own....	selec	amid..	4	....	own....	.....	.....	bevel..	rad-rd.	rad-rd.	int-r-w.	ext-r-w.	own....
hite.....TBC	1½-2	3300	157½	s*	36x3½	36x3½d	own...	2	2-3¾x5½	22.5	4	l.	m	p.	s.	.....	h.	s, l*	.....	.....	none..	.....	...	own...	g.	s.	p..	own....	own....	selec	amid..	4	....	own....	.....	.....	d-red..	rad-rd.	rad-rd.	int-r-w.	ext-r-w.	own....
hite.....TAD	3	4100	163	s.	36x5	40x5d	own..	2	2-3¾x5½	22.5	4	l.	m	p.	s.	.....	h.	.....	.....	.....	none..	.....	...	own...	g.	s.	p.	own....	own....	selec	amid..	4	....	own....	.....	.....	d-chn.	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own....
hite.....TCD	5	5000	169	s.	36x5	40x6d	own..	3	2-4½x6½	29.0	4	l.	..	p.	s.	.....	h.	.....	.....	.....	none..	.....	...	own...	g.	s.	p.	own....	own....	selec	amid..	4	....	own....	.....	.....	d-chn.	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own....
chita.....A	1	1750	110*	s.	34x3	34x4	own...	2	4-3½x5	19.6	4	l.	..	t.	s.	Bosch..	h.	s, l	....	.....	none..	....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	unt-j..	3	7.3	Sheldon	.....	.....	d-chn.	rad-rd.	t-arm.	int-r-w.	int-sht.	Ross...
chita.....K	1	1750	118*	s.	36x3	36x4	own...	2	4-3½x5	19.6	4	l.	..	t.	s.	Bosch..	h.	s, l	....	.....	none..	....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid..	3	7.8	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
chita.....L	1½	1950	118*	s.	36x3	36x5	own...	2	4-3½x5	19.6	4	l.	..	t.	s.	Bosch..	h.	s, l	....	.....	none..	....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid..	3	8.6	Sheldon	.....	.....	worm.	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
chita.....B	2	2250	118*	s.	34x3½	34x6	own...	2	4-3½x5	19.6	4	l.	..	t.	s.	Bosch..	h.	s, l	....	.....	none..	....	13	Stmbg..	g.	s.	c..	own....	Covert.	selec	unt-j..	3	8.2	Sheldon	.....	.....	d-chn.	rad-rd.	t-arm.	int-r-w.	int-sht.	Ross...
chita.....R	2½	2500	144*	s.	36x4	36x7	Wauk.	3	4-3½x5½	22.5	4	l.	..	p.	s.	Bosch..	h.	s, l	cnt.	motor.	Wauk..	1060	13	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid..	3	10.6	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
chita.....O	3½	3450	165*	s.	36x5	36x5d	Wauk.	3	4-4½x5½	32.4	2	l.	..	p.	s.	Bosch..	h.	s, l	cnt.	motor.	Wauk..	1200	11	Stmbg..	g.	s.	c..	Hart...	Covert.	selec	amid..	3	11.7	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
chita.....Q	5	4000	165*	s.	38x6	38x6d	Wauk.	3	4-4½x5½	32.4	2	l.	..	p.	s.	Bosch..	h.	s, l	cnt.	motor.	Wauk..	940	9	Stmbg..	g.	s.	c..	Hart...	Covert.	selec	amid..	3	13.7	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
lcox.....S	1	1825	128	p*	35x5*	35x5*	Cont..	3	4-3½x5	22.5	4	l.	..	t.	s.	Bosch..	h.	l, West...	cnt.	motor.	Pierce..	1200	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.5	Sheldon	Sheldon	own*...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
lcox.....X	1½	2425	144	s.	36x4	36x5	own...	3	4-4½x5	29.0	2	l.	..	p.	s.	Bosch..	h.	l, West...	cnt.	motor.	Pierce..	1100	16	Stmbg..	g.	s.	c..	own....	own....	selec	amid..	3	7.7	Sheldon	Sheldon	own*...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
lcox.....Q	2	2750	150*	s.	36x4	36x3½d	own...	3	4-4½x5	32.4	2	l.	..	p.	s.	Bosch..	h.	l, West...	cnt.	motor.	Pierce..	1100	14	Stmbg..	g.	s.	c..	own....	own....	selec	amid..	3	8.7	Sheldon	Sheldon	own*...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
lcox.....P	3½	3425	154*	s.	36x5	36x5d	own...	3	4-4½x5	29.0	2	l.	..	p.	s.	Bosch..	h.	l, West...	cnt.	motor.	Pierce..	1100	10	Stmbg..	g.	s.	c..	own....	own....	selec	amid..	3	11.7	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
lcox.....W	5	3475	162	s.	36x5	40x6d	Wauk.	..	4-4½x6½	36.1	2	..	..	p.	s.	Bosch..	h.	.....	cnt.	motor.	Wauk..	1000	14	Stmbg..	v.	..	dd.	own....	own....	selec	amid..	4	8.7	Sheldon	Sheldon	Spicer*	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
lson.....1	1	1650	124*	s.	34x3½	34x4	Cont..	3	4-3½x5	19.6	4	l.	..	p.	s.	Eismn..	f..	.....	.....	.....	.....	1800	18	.....	g.	s.	dd.	.....	Covert.	selec	unt-m.	3	....	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
lson.....E	2	2550	144	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce..	1050	15	Marvel.	g.	s.	c..	Hart...	Covert.	selec	amid..	3	8.6	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
lson.....	3½	3250	160	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	4	l.	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce	1100	12	Marvel.	g.	s.	dd.	Warner	Warner	selec	amid.	4	8.75	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
lson.....	5	.....	160	s.	36x6	40x6d	Cont..	4	4-4½x5½	32.4	4	l.	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce..	1100	10	Marvel.	g.	s.	dd.	Warner	Warner	selec	amid.	4	10.2	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
nther.....48	2	2800	150	s.	36x4	36x4d	Wis...	1	4-4x6	25.6	4	..	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1100	15	Master.	v.	d.	dp.	B&Bek.	own....	selec	amid.	4	8.1	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
nther.....68	3	3600	150	s.	36x5	36x5d*	Wis...	1	4-4x6	25.6	4	..	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1300	14	Master.	v.	d.	dp.	B&Bek.	own....	selec	amid	4	10.0	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
nther.....88	4	4000	156	s.	36x5	.....	Wis...	1	4-4½x6	28.9	4	..	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1300	12	Master.	v.	d.	dp.	B&Bek.	own....	selec	amid.	4	12.5	Clark..	Mthr...	Blood..	in-tg..	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
nther.....108	5	4600	162	s.	36x5	40x6d*	Wis...	1	4-4½x5½	36.1	2	..	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1100	10	Master.	v.	d.	dp.	B&Bek.	own....	selec	amid.	4	12.5	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
nther.....128	6	5000	162	s.	36x6	40x7d*	Wis...	1	4-5½x5½	42.0	2	..	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1100	10	Master.	v.	d.	dp.	B&Bek.	own....	selec	amid.	4	12.5	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
t Will.....WD16	1	2000	120	s*	36x3*	36x4*	Cont..	3	4-3½x5½	22.5	4	l.	..	p.	s.	Eismn..	a.	.....	cnt.	motor.	Pierce.	....	...	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	Timkn.	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
t Will.....WD16	2	2500	144	s.	36x3½	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn..	a.	.....	cnt.	motor.	Pierce.	.....	...	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	Timkn.	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
sconsin.....B	1½	1650	136	s.	34x3½	34x4	Wauk.	3	4-3½x5½	19.6	4	l.	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Wauk..	1200	15	Master.	g.	s.	dd.	Fuller.	Fuller..	selec	unt-m.	3	7.7	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
sconsin.....C	2½	2800	156*	s.	36x4	36x6*	Wauk.	3	4-4x5½	25.6	2	l.	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Wauk..	1100	14	Master.	g.	s.	dd.	Fuller.	Fuller..	selec	unt-m.	3	8.7	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
sconsin.....E	5	5000	166	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.2	2	l..	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Wauk..	1300	12	Master.	g.	s.	dd.	B&Bek.	Cotta..	id-c.	unt-m.	3	11.5	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
S.....4	3½	.....	154	s.	36x6	36x6	Cont..	3	4-4½x5½	32.4	2	..	..	p.	d.	Natl...	h.	.....	....	.....	.....	....	...	Zenith..	g.	s.	d..	Fuller..	Fuller..	....	unt-m.	3	....	Timkn.	.....	.....	wm-4	sprgs..	sprgs..	int.....	int.....	Ross...

Key to abbreviations on page 25.

Lamp Bulbs

MOTOR WORLD GUIDE

Lamp Bulbs

Car	HEAD LAMPS Volt	HEAD LAMPS Cp.	SIDE LAMPS Volt	SIDE LAMPS Cp.	TAIL LAMP Volt	TAIL LAMP Cp.	DASH LAMP Volt	DASH LAMP Cp.	Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks
Abbott-Detroit	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Allen	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S.	S.	Resist.	
American	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S.	S.	.....	Dash lamp double.
Anderson	6-8	21	6-8	12H	6-8	4	6-8	4	.....	E.S.	S.	.....	
Apperson	6-8	18	.....	.....	6-8	2	6-8	2	10	E.D.	D.	Resist.	
Arbenz	6-8	15	6-8	6	6-8	2	6-8	2	25	E.S.	S.	.....	
Auburn 39 B	6-8	15	6-8	4	6-8	2	6-8	2	25	E.S.	S.	.....	Dash Ediswan D.
Auburn 44	6-8	18	6-8	12	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Austin	6-8	24	6-8	4H	6-8	4	.....	.....	.....	E.S.	S.	.....	
Bell	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	Dash Ediswan D.
Biddle	6-8	21	6-8	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Dash Ediswan D.
Bimel D	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	.....	.....	
Bimel	12-16	15	.....	.....	12-16	2	12-16	2	.....	E.S.	.....	.....	Other models.
Brewster	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Dash Ediswan D.
Briscoe	6-8	21	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Resist.	Dash Ediswan D.
Bour Davis	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	.....	.....	
Buick	6-8	15	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	
Cadillac	6-8	18	6-8	6	3-4	2	3-4	2	C.B.	E.S.	S.	.....	
Case	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Chalmers	6-8	15	6-8	4H	6-8	2	6-8	2	{30 / 15}	.....	S.	.....	
Chandler	6-8	16	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Chevrolet	6-8	12	.....	.....	6-8	2	6-8	2	.....	E.D.	.....	.....	
	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.D.	.....	.....	
Cole	6-8	21	6-8	2H	3-4	2	3-4	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Columbia	6-8	15	6-8	4	6-8	2	6-8	2	None	E.S.	S.	.....	Dash Ediswan D.
Commonwealth	6-8	15	6-8	4H	6-8	4	6-8	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Crawford	6-8	15	6-8	4H	6-8	4	6-8	2	15	E.S.	S.	.....	Dash lamp Ediswan D.
Crow-Elkhart	6-8	15	6-8	4H	6-8	2	6-8	2	10	E.D.	S.	Series.	Dash lamp Ediswan D.
Cunningham	6-8	15	6-8	4	6-8	4	6-8	4	15	E.S.	S.	Warner lens.	Tail lamp Ediswan S.
Daniels	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Davis	6-8	15	.....	.....	6-8	4	6-8	4	.....	E.D.	S.	Warner lens.	Dash lamp Ediswan D.
Detroiter	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.D.	.....	.....	
Dispatch	12-16	21	.....	.....	12-16	2	6-8	2	2	E.D.	D.	.....	Two dash lamps.
Dixie	6-8	15	.....	.....	3-4	2	3-4	2	10	E.D.	D.	Resist.	
Doble	12-16	32	.....	.....	6-8	2	6-8	2	None	E.D.	S.	Warner lens.	Dash and tail in Series
Dodge	12-16	15	.....	.....	12-16	2	12-16	2	.....	E.S.	S.	Resist.	
Dorris	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Dort	6-8	15	.....	.....	6-8	4	6-8	2	10	E.S.	S.	Resist.	Dash lamp Ediswan D.
Elgin	6-8	21	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Elkhart	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	
Empire	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S.	S.	.....	Dash lamp Ediswan D.
Fiat	6-8	15	6-8	4H	6-8	2	6-8	4	.....	E.S.	.....	Warner lens.	Tonneau lamp 6 v. 2 cp.
Ford	6-8	15	.....	.....	.....	.....	.....	.....	.....	E.D.	.....	.....	
Franklin	12-16	21	12-16	4H	6-8	2	{6-8 / 12-16}	{2 / 2}	10	E.D.	.....	.....	Panel 12-16 v., 2 cp.
Glide	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	
Grant	6-8	15	6-8	4H	6-8	2	6-8	2	20	.....	S.	Resist.	Dash lamp Ediswan D.
HAL	6-8	18	.....	.....	6-8	2	6-8	4	15	E.S.	.....	Warner lens.	H'dlamps doub., tail and dash single.
Halladay	6-8	15	6-8	4H	6-8	4	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Harroun	6	15	.....	.....	3	2	3	2	15	E.S.	S.	Resist.	Dash Ediswan D.
Haynes	6-8	15	6-8	12H	6-8	2	6-8	2	5	E.D.	D.	Series.	
Hollier	6-8	15	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Series.	
Howard	6-8	15	6-8	2H	6-8	2	6-8	2	.....	E.S.	S.	.....	
Hudson	6-8	15	.....	.....	3-4	2	3-4	2	.....	E.S.	S.	Resist.	Dash lamp Ediswan D.
Hupmobile	6-8	15	6-8	4	6-8	4	6-8	4	15	E.S.	S.	Resist.	
Inter-State	6-8	15	.....	.....	6-8	2	6-8	2	10	E.D.	S.	Resist.	
Jackson	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D.	S.	.....	
Jeffery	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	.....	.....	
Jones	6-8	21	6-8	2	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Jordan	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
King	6-8	18	6-8	4H	6-8	2	6-8	2	10	E.S.	S.	Series.	
Kissel	6-8	18	.....	.....	6-8	2	6-8	2	20	E.D.	S.	Series.	Dash lamp single.
Kline	6-8	15	6-8	4	6-8	2	6-8	2	15	E.S.	S.	.....	Fuses 5 amp. in all but hdlps.
Lewis	6-8	15	.....	.....	3-4	2	3-4	2	.....	E.D.	S.	Resist.	
Lexington 6R	7	30	.....	.....	6	2	6	4	15	E.S.	S.	D. Bulb.	Dash lamp Ediswan D.
	.....	32	.....	.....	.....	.....	.....	.....	5	.....	.....	Hdlamps	Spotlight, 7 v., 21 cp., double contact.
	7	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Liberty	6-8	15	.....	H	6-8	2	6-8	2	.....	E.S.	S.	.....	
Locomobile	6-8	21	6-8	6	6-8	4	6-8	2	10	E.S.	S.	Resist.	Tonneau & Spotlight 6-8v., 2 cp.
McFarlan	6-8	24	6-8	12H	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Madison	6-8	15	6-8	6H	6-8	4	6-8	4	5	E.S.	S.	Series.	Dash lamp Ediswan D.
Maibohm A	12	18	12	4	6	2	6	2	None	E.S.	S.	Resist.	
B	6-8	18	6-8	4	6-8	2	3-4	2	15	E.S.	S.	Resist.	
Marion	6-8	18	6-8	4	6-8	2	6-8	2	30	E.S.	.....	.....	
B	6-8	21	6-8	4	6-8	2	6-8	2	30	E.S.	.....	.....	
Marmon	6-8	24	6-8	8H	6-8	4	6-8	4	20	E.S.	S.	Warner lens.	
Maxwell	12-16	24	12-16	.....	12-16	2	12-16	2	20	E.S.	S.	Resist.	
Mercer	12-16	24	12-16	4	12-16	4	12-16	4	10	E.S.	S.	Clear lens.	
Metz	6-8	15	6-8	4H	6-8	2	6-8	2	50	E.D.	S.	Shad. rays.	
Mitchell	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D.	S.	Series.	
Moline-Knight	6-8	15	6-8	6H	6-8	2	6-8	4	20	E.S.	S.	Deflect.	
Monroe	6-8	15	6-8	2H	6-8	2	6-8	2	.....	E.S.	S.	.....	
Moon	6-8	15	.....	.....	6-8	2	6-8	4	C.B.	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Murray	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.D.	.....	Warner lens.	Dash and tail Ediswan S. Fuses 5 amp. in dimmer.
Nash	6-8	14	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	Dash lamp double.
National	6-8	18	6-8	4H	6-8	2	6-8	2	.....	E.S.	.....	.....	Dash lamp double.
Nelson	6-8	15	6-8	4H	6-8	2	6-8	2	5-30	E.D.	D.	.....	
Oakland 34-B	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.	Dash lamp Ediswan S.
Ogren	6-8	12	6-8	6	6-8	6	6-8	6	.....	E.S.	S.	Deflect.	
Oldsmobile	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Olympian	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.	
Overland	6-8	16	.....	.....	3-4	2	3-4	2	20	E.D.	S.	Series.	Dash and tail Ediswan S.
Owen O-36	28	21	28	4H	28	2	28	2	10	E.D.	D.	.....	
M-25	14	21	14	4H	14	2	14	2	10	E.D.	.....	.....	Headlamps Ediswan S.
Paige-Detroit	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Paterson	6-8	12	6-8	8H	.....	.....	.....	.....	.....	.....	.....	.....	Dash lamp Ediswan D.
Packard	6-8	24	6-8	6	6-8	2	6-8	4	10	E.S.	S.	Warner lens.	Aux. headlights, 6 cp.
Pan American	6-8	15	.....	.....	6-8	2	6-8	2	20	E.S.	S.	D Bulb.	Dash lamp Ediswan D.
Pathfinder	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	Warner lens.	
Peerless	6-8	15	6-8	4	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	
Pierce-Arrow	6-8	21	6-8	4	6-8	4	6-8	4	10	E.S.	S.	Sutterly	
Pilot	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.	
Porter	12-16	25	12-16	6	12-16	3	12-16	3	6-3	E.S.	S.	.....	
Premier	6-8	21	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	Dash lamp double.
Regal	6-8	21	.....	.....	6-8	4	6-8	2	.....	E.S.	S.	Resist.	
Reo	6-8	15	.....	.....	3-4	2	3-4	2	5	E.D.	D.	Series.	
Ross	6-8	15	.....	.....	6-8	4	.....	.....	.....	E.D.	.....	.....	
Saxon	6-8	12	.....	.....	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Scripps-Booth	6-8	21	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	Series.	Inspec. lamp, 6 v., 2 cp.
Simplex	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Tail lamp double.
Singer	6-8	32	.....	.....	6-8	2	6-8	2	5	E.S.	S.	Warner lens.	Tail lamp double.
Sphinx	6-8	12	6-8	4H	6-8	4	.....	.....	25	E.S.	S.	.....	
Standard	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	
Stanley	6-8	18	6-8	4H	6-8	2	6-8	2	.....	E.D.	D.	Warner lens.	
Stearns SK8	12-16	24	12-16	4H	12-16	2	12-16	2	20	E.S.	S.	.....	Dash lamp double.
SKL-4	12-16	18	12-16	4H	12-16	2	12-16	2	20	E.S.	S.	.....	Dash lamp double.
Stephens	6-8	21	6-8	4	3-4	2	3-4	2	20	E.S.	S.	.....	
Sterling	12-16	15	12-16	4	12-16	2	12-16	2	.....	E.S.	S.	.....	
Studebaker	6-8	12	.....	.....	6-8	2	6-8	2	10	E.S.	S.	Resist.	
Stutz	6-8	21	6-8	4H	6-8	2	6-8	2	.....	E.D.	D.	Warner lens.	
Sun	6-8	18	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Resist.	
Velie	6-8	15	6-8	4	3-4	2	3-4	2	5	E.S.	S.	.....	Dash lamp double.
Westcott	6-8	15	6-8	4H	3-4	2	3-4	2	.....	E.S.	S.	.....	Dash lamp double.
White	12-16	25	12-16	4H	12-16	4	12-16	4	C.B.	E.D.	D.	Warner lens.	
Willys-Knight	6-8	16	.....	.....	3-4	2	3-4	2	.....	E.D.	S.	Series.	Tail lamp Ediswan S.
Winton	6-8	21	6-8	12	6-8	4	6-8	2	20	E.S.	S.	.....	
Woods	60	25	30	8H	30	10	30	10	10	E.D.	D.	.....	
Yale	6-8	15	.....	.....	3-4	2	3-4	2	.....	E.S.	S.	Series.	Dash lamp Ediswan D.

ABBREVIATIONS:—C.B.—Circuit Breaker. D.—Double wiring system. E.D.—Ediswan double contact. E.S.—Ediswan single contact. H.—Small bulbs in headlamps for city driving. Resist.—Resistance S.—Single wiring system. Series—Series connection.

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Editorial Observation

Just a Few Thoughts

IT is a new year. That's an old bromidic statement, isn't it? But it is a new year just the same. With some it is a new fiscal year and with others it isn't. But it is a good thing to look about a bit and see how the world is moving.

The shows all over the country are about the same as last year. That is, they are going to be held on just as a big a scale as ever. Minneapolis expects to have the biggest automobile show that was ever held in the world. Milwaukee is putting on a commercial transportation exhibit. The truck end of affairs will get prominence this year.

Some truck sellers have solicited sales on the grounds that the passenger car business is going to be all shot to pieces by the government and the war and that folks should buy trucks, not "pleasure" cars. Bad talk, boys! Bad talk! Let's not forget that we are engaged in the passenger car business, not the pleasure car business and that the only excuse the truck has for existence is that it is a prime essential. If it can't stand on its own feet it had better sit down and subside. It is one of the biggest things in the world to-day. So let's call it that and cut out our knocking. There are knockers enough outside the motor car business these days without any of the insiders using the hammer.

Somebody "somewhere in America" says some jobbers talk to fellow jobbers and to dealers about the folly of price-cutting and then go home and figure out the most gentlemanly way of camouflaging unethical business tactics. Remember, boys, that old yarn about the glass house and the paving bricks? Some of us need new clothes, so if these fit put 'em on and wear 'em.

Oh, yes! We almost forgot the grafting chauffeur. What are we going to do about that chap? Shall we coddle or can him? Has he any right to demand part of our profits? Have we any right to give them to him? Gosh, but he's a tough problem, isn't he? And when the motor car man has a tough problem he always lies down and dies, doesn't he? He does NOT.

In the same class is the tipping evil. We all tip waiters but do we want our customers to be tipping our employees? Let's be honest about it now—do we? Let's stop the practice.

How about going on a cash basis? It is easily done and it makes business a pleasure instead of a worry. Right now it seems to be a case of "everybody's doing it." Get on the band-wagon. It rides easier.

The jobbers' association started out some time ago to do some standardization work on labels and packages. It made some very good recommendations, some of which were at once adopted by some of the jobbers. The others had—or thought they had—good reasons for not adopting the recommendations. But don't forget that standardization cuts the cost of doing business, and the cost of doing business is one of our war-time problems. Let's standardize.

That same old jobbers' association—which everybody expected would be in jail long before this, but which is still on deck—is going to have a meeting this month. It can well afford to make this a war-time convention. Business adjustments are necessary, or, if not yet, soon will be. The jobbers ought to bring out some corking good thoughts and get ready to twist things around and get squared away for the big business that seems to be on the way for the jobber no matter if there is a war. It looks as though the meeting would be a corker.

And then there is the National Automobile Dealers' Association which fought its way into existence last summer. It has been ever since then catching its breath but looks now as though it would get all squared away at its meeting during the Chicago show and start out for the big things its founders have in mind. It has been bothered by a lot of twisted details during its early days, but things are better now and the future looks much rosier. There is a need now for this organization if there ever was a need. Dealers may be interested in knowing that in Colorado and its suburbs the state associations have two memberships. One is for dealers only and an extra $10 is charged, covering membership in the N. A. D. A. That plan should help build the national if pursued in other sections.

That's covering quite a lot of ground in one page, isn't it? But, seriously now, read it over again and walk around through your building, come back and sit down and see if there isn't something you ought to do to your business to give it a fair chance in 1918.

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What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome—especially if they are timely and brief.—THE EDITOR.

Our Roadman Says

Editor Motor World: In my work in Stockton and Sacramento I found boosters galore, and no knockers, and possibly the most pleasing interview I had was with Mr. L. L. Campbell of the Upper Stockton Garage, Sacramento.

I called on this man in September or October, 1916, and found him operating a little garage on the outskirts of Sacramento. He was busy painting the body of a car and at first would not stop to talk, but after a short while he finally consented to hear my story. When I got through he said he heard about those things before, and I kept on showing some other features of the Motor World, and he said: "Well, two dollars doesn't grow on bushes and I don't feel like throwing it away, and I cannot afford to spend it."

I answered that it wasn't a question of whether he could afford to spend two dollars or not but whether he could afford to be without Motor World service at any price. He being still unconvinced I said: "Now, Mr. Campbell there is no way for me to show you Motor World service unless you subscribe to it, we do not send sample subscriptions and I cannot tell you to buy it on the newsstands because it is a trade magazine. I have come pretty far out to see you. Just give me a dollar, take a chance and I'll send you the Motor World for six months."

His answer was: "All right, you've talked a dollar's worth."

I called on him again last Saturday; the transformation was surprising. He had paid $275 for a cash register, because to use his own words, before he read Motor World, "I never could tell how much money I took in."

The garage was clean and attractive, in spite of a dirt floor. He had built nice partitions and was making more improvements and during the year he had bought the lot on which the garage was built, had bought the lot adjoining, paid cash for it, had taken a trip with his wife to South Carolina last summer, and had so systematized his business that during his two months' absence the man whom he had left in charge had cleared $300 clean profit for him—and Mr. Campbell was willing to say that *"Motor World did it."*

And one further fact stands out and looms up as high as Old Baldy: The firms that subscribe to Motor World are there the following year and the year after that and they grow with each year—the fellows who don't read it either fall by the wayside or remain stationary or go further down. This is not shop talk either; I can cite you scores of instances proving the above assertion.—J. B. Adatte, Motor World Pacific Coast Representative.

Motor Truck Convoy Finishes at Baltimore

Twenty-nine of the 30 Trucks That Started Reach Destination Without Trouble—The Route

WASHINGTON, D. C., Dec. 29—The motor truck convoy which left Detroit Dec. 14 to make the first test overland drive-away to the Eastern seaboards arrived at Baltimore, its American terminal, yesterday. One of the 30 trucks starting the journey failed to finish, having been struck by a train en route. The trip marks the beginning of a new era of huge and vast drive-aways. Orders were issued immediately following the end of the journey by Major Miller to all motor companies shipping war trucks East to utilize the highways of the nation for drive-aways in all instances. The journey was made slowly under orders from the War Department, averaging 50 miles a day.

The complete convoy comprised 28 3-ton Packard motor trucks, 2 Packard oil tank trucks, a Dodge five-passenger car, a Dodge roadster, a Dodge light delivery truck and a General Motors light ambulance truck. The personnel included: Capt. Bennett Bronson, Quartermaster Corps, in charge of convoy; Lieut. C. A. Riley, Quartermaster Corps, in charge of motor train; Lieut. L. J. Ward, U. S. M. C., medical officer in charge; eighty National Army men; Capt. E. B. Butchers, representing U. S. Engineers Corps, and H. C. Ostermann, representing Highways Transport Committee.

The trip is particularly remarkable in view of the fact that none of the drivers has ever driven any truck before. They were all men taken from an infantry camp and placed at the wheel. Weather conditions were the most adverse possible. The convoy left Detroit at 4 below zero and fought through snow all the way up to Pennsylvania. Schools were let out along the route, business, military and professional men turned out to give welcome to the trucks, and the Red Cross had hot meals ready for the soldiers at every stop.

The trip absolutely proves the feasibility of motor truck transportation in all kinds of weather. Following is an outline of the journey:

The U. S. Motor Transport left Detroit December 14, at 10 A. M., from the Packard factory proceeding through Detroit without difficulty, as the streets were cleared of traffic and no snow was found. The transport arrived at Monroe, Michigan, at 9 P. M. after laying 3½ miles west of Monroe 3 hours attempting to clear the route of snow. The distance covered the first day was 45 miles.

The transport arrived at Toledo 5.30 P. M. without encountering any particular difficulty between Monroe and Toledo with the exception of short stretches where the road had not been dragged and light traffic had broken the drifts into a zig-zag line. No effort had been made by county officials to scrape off the roads. In many instances the road was broken on one side, covering a portion of the shoulder of the road, making it dangerous to heavy truck transportation. Distance on the second day 18 miles.

They left Toledo 7.30 A. M., Dec. 16th, passed to Norwalk, Ohio, and arrived at 7.30 P. M. No effort had been made by the county and township officials to clear the roads and considerable snow drift trouble was encountered. The mileage of the day was 62 miles.

Leaving Norwalk at 8.20 A. M. Dec. 17th, the convoy found the road, with a few exceptions, well cleared of snow and experienced no difficulty in reaching Cleveland at 6 P. M., covering 58 miles for the day.

It left Cleveland at 9 A. M. Dec. 18 and arrived at Ravenna, Ohio, at 5 p.m. The road showed some care, but work had not been completed in an intelligent manner and high centers were encountered. From Ravenna to Warren, through misunderstanding, the route was changed and 24 miles of bad roads were encountered. Later it was learned that officials had cleared the road on the original routing. Trucks arrived at Warren at 3 A. M., covering 65.5 miles.

On the route from Ravenna to Warren truck No. 21 was struck by a passenger train and the driver was killed. This necessitated laying over at Warren on Dec. 19.

The party left Warren at 7.15 A. M. Dec. 20 and arrived at New Brighton at 8 P. M., covering 54.8 miles. Considerable difficulty was encountered on that section of the road known as the "cut-off" between New Springfield and Unity. A little graveling had been done by Mahoning county and nothing at all by the Columbiana county. The stretch was narrow and a primitive dirt road. Three sharp right angle turns were found. After the trucks passed over the road, ruts a foot deep were left.

New Brighton was left at 8.20 A. M. and Pittsburgh reached at 2 P. M. Dec. 21. No difficulty was experienced over this 32 miles of the trip.

From Pittsburgh east the journey was made without difficulty, road conditions in Pennsylvania and Maryland being found in excellent shape.

Credit is given by members of the party to the State Highway Departments of Pennsylvania and Maryland for the remarkable condition of all roads. The last 232.9 miles were made in 7 days.

The trip was educational and resulted in a conference in Washington with the War Department about the lessons learned on the trip. The success of the trip is indicated by the fact that 6 similar truck trains have been ordered to leave Detroit next week, carrying supplies to the seaboard.

The snow organization was bad in Michigan and Ohio, but excellent in Pennsylvania and Maryland. The Highway Transport Committee would like all highway departments to remember that trucks demand a wider clearance of the roads than passenger cars.

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The RETAIL NEWS

EAST

Chesapeake Tire & Rubber Co., Baltimore, has moved to larger quarters at 531 North Howard Street.

Downtown Motor Co., Baltimore, has been purchased by Howard M. Cone, formerly general manager.

Habersham-Miller, Inc., Republic truck distributor, has moved to larger quarters at 131 West North Avenue, Baltimore.

SOUTH

Deal Garage Co., Gainesville, Ga., has installed a vulcanizing plant and filling station.

Darby's Garage, Monroe, Ga., has added a vulcanizing plant and free battery service.

New Garages

J. Morgan.....Pembroke, Ga.
Frank Pilcher.....Thomson, Ga.
C. R. & C. E. Wison, Jr....Rissellville, Ala.

MIDDLE WEST

Vern Loomis, Lake Odessa, Mich., has purchased the garage of Ross Hammond, Olivet, Mich.

Central Auto & Accessory Co., Bay City, Mich., has leased Miller Bros.' garage, Standish, Mich., and will conduct Chevrolet sales and service station.

Pinkelman-Clarke & Co., Quincy, have opened a tire sales and vulcanizing shop with free road service. The company will handle Dayton and Diamond tires.

New Garages

Postal Turner Auto Co.....Evart, Mich.
A. F. Messner,
Main Street, Benton Harbor, Mich.
The Electric Service Co.....Decatur, Ill.
J. H. Gombart.....Galesburg, Ill.

NORTHWEST

Morse Rubber Co., Inc., 920 Marquette Avenue, Minneapolis, has taken over the business of Frank L. Morse.

Elmer Larson and W. A. Lundquist, Graceville, Minn., have bought the Cota Bros. garage.

B. A. Stokke, Havre, Mont., has bought the Wentworth Garage and added a machine shop.

Ben. Martinson and Charles Wilkenson, Ruthton, Minn., have bought the L. H. Lawrence garage.

Carl Irgvalson, Ivanhoe, Minn., has bought the Briffet & Westman garage.

C. J. Steele, Arco, Minn., has bought the Foulds & Danielson garage.

Wild Rose Realty Co., Wild Rose, S. D., has bought the E. C. Norman garage at Winthrop, Minn.

J. S. Sorlie and J. E. Ruud, Albert Lea, Minn., have bought the interest of H. W. Sieglaff in the Sieglaff-Sorlie garage, East Clark Street.

Leonard Peppard, Drayton, N. D., has bought the Harry Wallace interest in the Modern garage.

C. H. Flaherty and W. J. Ryan, Spencer, Iowa, have sold the Service Tire and Rubber Co. to W. B. Sweppe and Z. E. Armstrong.

Orange Rawson and L. G. Ritenhouse, Arlington, Iowa, have bought D. A. Newton's garage.

Studebaker Wilson, Inc., Omaha, has opened a branch salesroom and service station at Modale, Iowa. Frank L. Hammer is manager.

W. M. Clement Motor Co., Omaha, is enlarging its show rooms.

The Willard Storage Battery Service Station, Council Bluffs, has doubled its floor space.

New Garages

Buckholz and Francois .....Dubuque
Charles Bell.....Council Bluffs
F. G. Hinegarder.....Toledo, Iowa
G. M. Heizerman.....Albia, Iowa
J. H. Cutoff.....Omaha
M. D. Cameron.....Omaha
Erick Gjovig.....Norman, Minn.
Zwick Bros. (addition)....Lake City, Minn.
George LaSell.....Millarton, N. D.
Sturr-Bullard Motor Co.,
1330 Nicollett Avenue, Minneapolis

MOUNTAIN

Morrison Motor Car Co., Ft. Collins, Colo., has moved to a new salesroom.

Sanford & Riddle have bought the Hawkins Garage, Ft. Collins, Colo.

Laporte Avenue Garage, Ft. Collins, Colo., has been sold to Van Ham & Brown.

O. J. Heckelsweiter has purchased the Grubb Garage, Ft. Collins, Colo.

Spiker & Jeffreys, Lewiston, Idaho, have moved to new quarters on Eighth and Main Streets. The building is 60 x 178, with storage room for 150 cars.

New Garages

Lincoln Highway Garage (addition)
Wellington, Colo.
John Schuler.....Brush, Colo.
William Hillman.....Raymer, Colo.
Ideal Auto & Machine Co.....Sterling, Colo.

SOUTHWEST

The Dallas Oakland Co., Dallas, has enlarged its salesrooms.

The Overland Co., Dallas, is erecting a new building which will cost $150,000 on South Ervay Street.

The Bearings Service Co., Dallas, has moved into new quarters at 2034 Main Street.

Starzer & Jansing, Norman, Okla., have bought the O. C. Banks Garage.

W. S. Bradshaw, Mangum, Okla., has sold an interest in his garage to L. M. Macum.

Platte Woodruff, Sentinel, Okla., has bought the garage of H. B. Winburn.

Frank Alexander and J. D. Pack, Arkansas City, have sold the Coyley County Motor Co. to A. P. Turner and J. C. Bartlett.

J. E. Sienz, Protection, Kan., has bought the Tom Dorsey garage.

Byron W. Myers, Goodland, Kan., has opened a vulcanizing plant in the Lemmer building.

Rex Welty, Hill City, Kan., will open a vulcanizing and tire repairshop.

O. H. Bond Motor Car Co., Parsons, Kan., has bought the Western Auto Supply Co. from Ben Pepperdine.

Quick Tire Service, Inc., Kansas City, has bought the tire service department of the Gustin-Bacon Mfg. Co., and has leased its building at Twenty-seventh Street and McGee Road.

The Plainview Rubber Co., Plainview, Tex., has bought the stock of the G. C. Electric Co.

Aubrey Osings, Centralia, Mo., has sold his garage to David Montgomery.

R. B. Goffey, Stanberry, Mo., has opened a vulcanizing plant.

Urie & Noel, Lamonte, Mo., has succeeded C. R. Urie in the local garage.

C. C. Clark, Dexter, Mo., has bought the Wm. Dugan garage.

C. E. Beavers, Neosho, Mo., has bought the interest of L. Lowe in the Four B Garage & Taxi Co.

W. A. Schneider, Sikeston, Mo., has opened a vulcanizing shop.

J. W. Graves, Mountain View, Mo., has bought a half interest in the City Garage from Wm. Arthur.

H. M. Balch, Wichita, Kan., has bought the garage of Fred Conner.

The Luther-McCoy Motor Co., Dodge City, Kan., has bought the vulcanizing business and equipment of W. R. Archer.

T. M. Muckenthaler, Wamego, Kan., has sold his interests in the Wamego Garage to his partner, John Noll.

C. O. Talley, Hill City, Kan., has opened a vulcanizing shop.

New Garages

A. Cremb & F. I. Merrill.....Ellis, Kan.
Chas. Wahl (addition).....McCracken, Kan.
Will Rogers (addition).....Claremore, Okla.
Thomas & Finch.....Boise City
J. H. McCloskey.....Ranger, Tex.
Sam Gates.....Flat River, Mo.
A. C. Randall.....Sawyer, Kan.
Ray Cole.....Smith Center, Kan.
Connor Taxi & Baggage Co.....Joplin, Mo.
R. G. Beezley.....Steelville, Mo.
Independence Motor Co..Independence, Kan.
Gettler Bros.....Valley Falls, Kan.
Tulos & Estis.....Pauls Valley, Okla.

PACIFIC COAST

Eldridge Buick Co., Seattle, has remodeled its building and added offices and showrooms for the truck and accessory departments.

M. F. Sterling and A. Kennedy, Castle Rock, Wash., have installed a vulcanizing plant in the Castle Rock Garage.

Malcolm Tire Co., Portland, has opened a salesroom at 82 Broadway, North, for seconds.

New Garages

J. D. Lowman.....Seattle
Eastman Motor Co.....Spokane
Pomeroy Garage.....Pomeroy, Wash.
Universal Auto Co.,
711 Second Avenue, Spokane
Portland Garage.....Portland
C. H. Carl.....Carlton, Ore.
R. T. Mason..3636 McKinley Avenue, Tacoma

Wilmington Expects Big Year

WILMINGTON, DEL., Dec. 31—On the eve of the year 1918 local motordom is decidedly optimistic as to the prospects. The year ending to-day has been the best in history for the local trade, according to statements of some of the leading dealers, and, notwithstanding the fact that the country is at war, an even better business year is believed to be in store. The use of commercial vehicles has been wonderfully developed here this year.

In Wilmington's normal territory—the State of Delaware and part of Maryland—the entire area is within a day's travel of Wilmington, Philadelphia and Baltimore, as well as many smaller cities, which has brought the produce grower to a realization of the fact that the motor car is his only salvation. The result has been recent purchases of cars by farmers who never gave the idea a thought before, but who have been compelled to do so to get their goods to market.

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Three New Studebaker Models

Two Sixes and a Four Quite Different from Previous Models

The Studebaker Corp. has announced three new cars for 1918. These include a Big Six, 60 hp., chassis of 126 in. wheelbase; a Light Six, 50 hp., chassis of 119 in. wheelbase, and a Four, 35 hp., chassis of 112 in. wheelbase. A 7-passenger touring body is mounted on the Big Six, a 5-passenger touring, a 4-passenger and a 2-passenger roadster on the Light Six and a 5-passenger touring and a 2-passenger roadster body on the Four.

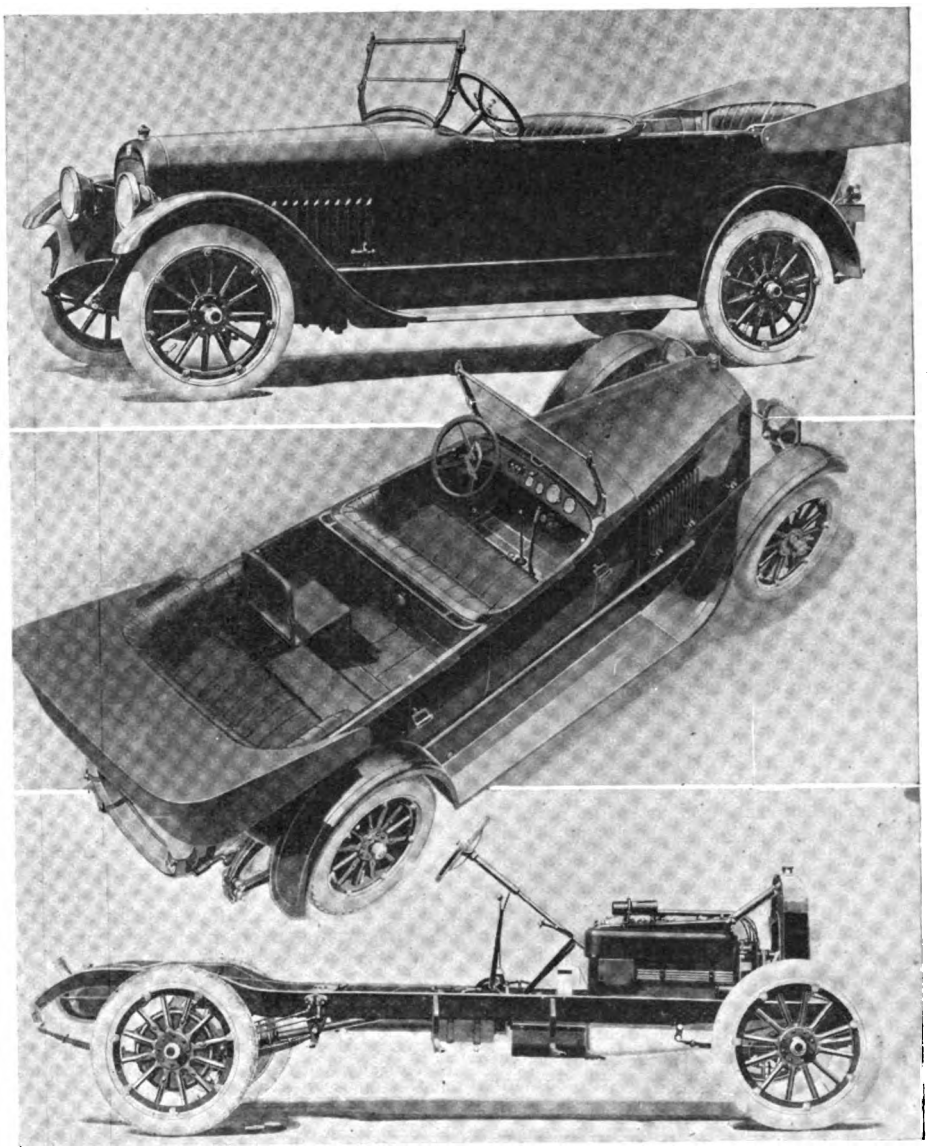
The new cars have full stream line bodies with a distinctive bevel edge. The seats are low hung, being deep and comfortable; the windshield is of the slanting, rain-visicn type, and a long robe and hand rail extends across the full width of the front seats. The auxiliary seats in the 7-passenger car foid into the back of the front seats and are enclosed by a leather drop curtain.

The engines are of the L-head type, with the cylinders cast in block. The Big Six is 3⅞ in. bore by 5 in. stroke, developing 60 hp.; the Light Six is 3½ in. bore by 5 in. stroke, developing 50 hp., and the Four is 3½ in. bore by 5 in. stroke, developing 35 hp The cylinder head is detachable in the Big Six and the cylinder blocks are cast integral in the Light Six and the Four. All main bearings are of die cast bronze backed babbitt. Crankshafts and camshafts are of chrcme-nickel steel, drop forged and doubly heat treated. A change in valve timing together with an increase in lift from ¼ to 5/16 in. and improved carburetion and manifolding gives a material increase in power and smoother operation.

A hot spot inlet manifold affords better fuel economy. The crankcase has also been stiffened which tends to reduce the vibration at high speeds. Lubrication is effected by a combined splash and distributing system in which the splash is reinforced by a gear oil pump in which the oil is supplied to the main and cam shaft bearings.

The clutch is of the cone type, using an aluminum spider which is connected to the gearset by means of a Thermoid-Hardy coupling. The gearset is located amidships and is of the three speed type with center control. The drive is transmitted through two Spicer joints to a semi-floating rear axle using spiral bevel driving gears.

Hotchkiss drive is employed in which the torque is taken up by semi-elliptic underslung rear springs, 56 in. long x 2 in. wide in the Big Six and Light Six, and 50¼ in. x 2 in. in the Four.



The new Studebaker Light Six touring model
The Larger Six seven-passenger car
The chassis of the Light Six model

The bottle neck type of frame is used which is made from carbon steel. These frames vary in depth from 5½ in. for the Big Six to 4½ in. for the Four, and are made from stock 5/32 in. thick. The frames are well brased with five cross members to provide ample strength.

The gear ratio on the Big Six is 3.7 to 1, on the Light Six 4 to 1, and 4.08 to 1 on the Four. The tires sizes for the Big Six are 33 x 4½, Light Six, 32 x 4, and Four, 32 x 3½. The equipment includes speedometer, oil gage, battery indicator, carbureter controls, gasoline gage, electric horn, complete set of tools and a robe and foot rail. The Big and Light Sixes have mahogany instrument boards and mahogany panel with glove box on the back of the front seats. The Big Six is equipped with ammeter, Waltham clock, speedometer and tonneau lamp.

Let Contracts for 4100 Trucks

WASHINGTON, D. C., Dec. 29—Contracts for 4100 war trucks for service in the Aircraft division of the Signal Corps have been awarded as follows:

1½-Ton Trucks

Signal Motor Truck Co.	500
Republic Motor Truck Co.	500
Denby Motor Truck Co.	500
General Motors Truck Co.	700

3½-Ton Trucks

Standard Motor Truck Co.	250
United Motor Truck Co. (Grand Rapids)	250
Federal Motor Truck Co.	500
Kelly-Springfield Truck Co.	500
Velie Motor Co.	400

These trucks are ordered for delivery early in 1918.

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Two Things That the War Will Demand

1—A car that is economical to operate
2—A dealer who is an A-1 business man

NEW YORK, Dec. 28.—The effect of the war upon the automobile industry was considered last evening at a meeting of the Metropolitan Section of the S. A. E. The meeting was without precedent in the history of the section in that it departed radically from engineering lines and became a discussion of the merchandising aspect of the business.

The discussion began along engineering lines with a paper by A. Ludlow Clayden, of Automotive Industries, who pointed out the probable changes that will come in the design of cars as a result of the war. A number of large New York dealers listened with interest and took part in the discussions. Clayden pointed out that we are passing from an era in which we are trading "What will she do on high?" for "What will she do to the gallon?"

He stated that the cars that are now in demand are those that are economical and generally small, and that the car of 10 years hence will be operating on a fuel which could not be used in cars of to-day, even though it might then be called gasoline, as is our fuel of the present. The price, he said, would possibly be one-third that of present commercial gasoline.

The merchandising aspect of the situation, the effect of the war on dealers now, during the war and after the war, was treated in a paper by Ray W. Sherman, editor of Motor World. Dealers, he said, must alter their businesses in many ways if they are to continue throughout the war with satisfactory volumes of business. Where business is affected at one point, volume must be created at another point. More aggressive methods must be used and business and merchandising must become more efficient. The end-of-the-war period should see a highly efficient group of dealer-organizations all ready to step forward into the peace period with great prospects of big business.

Emlen H. Hare, president of the Packard Motor Car Co. of New York, told how his company had analyzed the situation and discovered why it is essential that business be not permitted to slacken. He said patriotism is not a legitimate excuse for not buying goods, and told how the New York Packard branch is running newspaper advertising to build public opinion of this kind.

William L. Colt, manager of the Overland business in this city, expressed similar sentiments and emphasized the fact that it is the duty of the dealer to keep himself fit for continuous business.

Alfred Reeves, general manager of the N. A. C. C., told how the affairs of the industry are being handled in Washington.

The principle of expansion of industry, as an industrial war-time necessity, was asserted by David Beecroft, directing editor of Motor Age. He decried the mistaken policy in some sources that war results must come through curtailments. He declared that our whole industrial organization must be expanded for greater needs rather than be cut down to make room for new products.

The papers by Clayden and Sherman follow.

Dealer Must Fit Self to Situation

He Must Adjust His Business to the New Conditions—War a Crucible That Will Refine the Trade

IN considering the effect of the war upon dealers, said Sherman, it seems logical that we should consider the effects now, in the future during the war and after the war.

So far as the present effects are concerned it seems that dealers are divided into about three classes:

1—The class that has been very adversely affected.

2—The class that is in the transitory stage.

3—The class that has not been affected or has so revamped itself that it is not suffering from a business depression.

The first class has in some cases been pushed out of business by circumstances, and some of these circumstances are due as much to the dealer as to the war. The dealer who had his business on a sound foundation, who was prepared to meet changes as they came and who was long on figuring in emergencies fared well, but the less capable element in the trade has been hit the hardest. This, however, is sometimes due to the car, for, as we may discuss elsewhere, not all cars sell well. There are good sellers and bad sellers in these times.

The second class is the dealer who has a good organization, who has had pretty good agencies and who has enjoyed a good business and now sees it falling off. He knows he is in a bad hole and stands in danger of getting in a worse hole, but he has not grasped the situation in a firm and able manner for the purpose of working out his salvation. There are certain things every dealer must do at this time and the dealer who doesn't take hold of the situation and work out the necessary adaptations must obviously suffer.

The third class of dealers is perhaps small, especially in this part of the country. Its business is good. There are a few dealers who are selling more cars at present—or at least during the last few months—than they sold a year ago. In the western farming sections the business is not so bad. Some of the farmers are holding off on winter buying but say they will buy in the spring. Their reluctance is due to the farmer's frame of mind and his habits rather than to any business cause. Dealers in those sections are suffering somewhat from winter depression, but not so much from war depression.

The reason certain other dealers in sections where the depression is felt most have not slumped is due to their methods and their cars. There are some cars that would be hard to sell at this time by any organization. The demand is not for the big heavy cars but rather for the smaller and more economical cars. When it comes to big cars they can be sold provided they happen to be in the millionaire class. But a big heavy car that is in the medium-priced class is not so great an attraction.

Limousines are not easy to sell. Many prosperous owners have discharged their chauffeurs and are buying sedans. One dealer I know has a waiting list of two or three dozen chauffeurs who have been discharged by their owners. Another dealer says he must convert his stock of limousines into cash at cost in order not to stand a greater loss by carrying them too long.

Aggressive sales methods are making things better for some dealers. The organization that goes after business at this time with the right sort of car can get the business. It can even hold up to last year's record.

Thus far the possession of a good agency and the use of aggressive methods have helped some dealers get by, but if the war should last a long period all dealers would have to go into the self-adjustment business.

The war will take mechanics, salesmen, office workers and all sorts of employees. There is no use denying it. They will be taken. There will be a shortage if the war lasts very long, and we should plan on a long war, not a short war. This will necessitate adjustments.

What should the dealer be doing on this score to-day? He should take a pad and pencil, go through his whole works, set down the employees who can be replaced by women or older men, mark down shifts that can be made where substitutions are necessary and get all ready so that when the shortage comes he will have plans all ready for putting into effect. He also should scrutinize every part of his business with an eye to possible changes. When he finds the war is going to take a piece of marble out of his business structure he should have a good brick all ready to put in.

In Motor World this week we have several pages of adjustments and war ideas already in use by dealers. One man took his used cars, painted them yellow and is netting $100 a week in the taxicab business. Others are putting in machinery that will save labor.

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A great many are going on a cash basis in order to reduce working capital. Some are employing women, although the practice has not spread far as yet—but it must. Dealers should look at the woman worker as something other than an amusing spectacle.

Other activities being taken up by dealers are trucks, tractors, farm lighting, etc.

Service is getting attention. All dealers would like to see it defined and restricted. Certain other economies will be worked out. Service stations may turn to repairing. Service must be made to pay a profit.

Eventually those businesses that go through the crucible of war will come out refined. They will be in a wonderfully efficient condition for making enormous strides in the period of peace. The automobile trade will be given a grueling schooling in penny-figuring and cost-watching.

The war ought to solve the used car problem if it does nothing else. It should cause used cars to bring higher prices. The dealer who has a lot of ramshackles in the back room can later this year get them out and make them run. Or he can scrap them and get good money for the materials. Some of these oldtimers are filled with aluminum and other much-needed materials.

There is a mistaken idea of economy on the question of car buying among the public and it is causing $2,000 buyers to pay only $1,200 and the $700 prospect to pick up a good used car.

If the war lasts two or three years more dealers will operate on close lines. Their volume will depend on what they make it. If it falls off in one spot they must make it up in another.

They will have women employees. They will advertise and follow up more efficiently and intensively. They will grab every chance to make a dollar—which they should have done long ago.

Garages and repairshops should be busy. With the old cars being run another year the four and one-quarter million cars must have repairs. Repairing is one line that seems to be in excellent condition at this very moment. The sale of accessories of the right sort should hold up. The truck field should be prosperous. The accessory jobber looks like a winner unless something we cannot now foresee happens.

And then—after the war. The people who would have bought cars but didn't because of the war are going to buy. They are going to spend money in the spirit of a boy let out of school. The lid will be off. Industry should spin. Of course, there will be after-war readjustment problems, but there should be a demand for all kinds of goods and no good American could sit easy and see a perfectly good demand for anything go to waste. It is not the custom of the country.

Probably after the war a lot of less efficient dealers and garagemen will spring up. That always happens in any trade that is prosperous. And then we shall have many of our old troubles all over again.

But it does seem as though some of our problems of service and wild American waste should have been blotted out forever.

"What Will She Do to the Gallon?"

New Standard of Value in Cars at Hand, Says Clayden—Car to Be Bigger Factor in Nation's Life

WAR is having an effect upon every last detail of civilized life, said Clayden, and it is going to affect automobile design just as much as other things. We are to-day entering an era in which the highest ideal of a man or of a nation is the ideal of economy. Never before in history has economy been more admired than extravagance, never before has a change in public sentiment been made so swiftly. The American nation, a leader in so many things, has for fifty years been proud of the fact that its resources permitted it to be a leader in extravagance. Like the wealthy man who demands the best of everything, America has been the wealthy nation able to pay for whatever it wanted. If spending was to be a human ideal, then the American was better able to spend than a man of any other nation.

If these premises are sound, then the American passenger car of the near future is going to be one in which economy is a strong feature—a car of which the first cost, plus the maintenance cost over a period of years, will make a good showing. We are about to exchange "what will she do on high?" for "what will she do to the gallon?"

It is a fact that already those cars which have a reputation for economical operation have suffered far less than those which are known as wonderful performers.

The volume of passenger car business being done to-day represents little more than the essential trade which supplies transportation to those who need it. The whole agricultural life of the whole United States and a good half of the business life of small towns and large cities depend to-day upon passenger car transportation. The farmer's time table of his week's work is laid out on a schedule that necessitates a car to get him from point to point. And on the city side, just imagine, say Philadelphia, bereft of passenger cars. Think of the utter impossibility of living in Philadelphia's residential districts without road transportation.

THE LAST TEN YEARS OF AMERICAN TOWN PLANNING HAS BEEN ON AN AUTOMOBILE BASIS.

THE AMAZING INCREASE IN AMERICA'S AGRICULTURAL OUTPUT IS DUE TO THE RAPIDITY OF GROUND COVERING PROVIDED BY THE AUTOMOBILE.

But the average American car has exacted too high a price for the service it rendered. Not too high a first price, but too high a maintenance price. It has been too big, too heavy, too powerful; too extravagant of fuel, of oil and of tires; too frequently in need of repair.

To take just one instance: it is absurd to utilize two tons of machinery to carry a man ten miles from his home to his office. It is equally absurd to provide his car with an engine which normally has a fuel efficiency of 10 per cent, when it could have a 20 per cent efficiency by sacrificing the ability to crawl on high gear.

I do not wish to quote the European example as in any sense a criticism; but it is true that European cars have been much less costly to operate. They have to be because of the much smaller average wealth. The English or French user simply had to consider running expense. He had to have an economical car or none. This is the reason why motorcycles have had such an immense vogue on the other side of the Atlantic. The average American says "I can't ride a motorcycle. It isn't in keeping with my position; my friends would roast the hide off me." True enough last year—but will it be true next year?

Similarly it has been an ideal to have a huge car, an ideal fostered by advertising and by salesmen everywhere. Without doubt the big car has its comforts, but the little car has conveniences which more than counterbalance. Nobody who has tried both would ever choose a 140-in. wheelbase car for shopping in preference to a 110-in. one, provided both were of the same standard of engineering. At present engineers then have two ways to work—one towards a car which is more economical because it is smaller; another towards a car which is more economical because it is inherently better.

It is just a personal opinion, perhaps worth quoting in passing, that the greatest trade open to a magnetic system of transmission is in a car about 110-in. wheelbase, a 200-cu. in. engine and made in a quality which will make its fair price around $2,000—a car which is not meant to do much on high, a car perhaps which has no high at all, automatic gear ratio variation being a part of the transmission.

There is another thing. We are nearly at the end of gasoline as we know it. No doubt the fuel ten years hence will still be called gasoline, but it will not operate a 1918 gasoline car. We have got to learn to sacrifice the absurdities of "flexibility" existing in the modern engine in order to use a fuel which we will be able to buy for a third the present price. There is nothing to prevent a man lighting cigars with dollar bills if he wants to, but the world at large thinks it silly when matches are so cheap. At present the automobile is running on dollar bills instead of dimes, with little more real reason.

That it is doing so is due to the fact that the ideals we have worked for have been ideals which ended perforce with the coming of war. The automobile has been one of the great inventions of civilization. It has altered for the better conditions of life in almost every country on earth. Yet all the time it was doing this it was being designed for pleasurable performance rather than for the useful work which formed the major reason for its existence.

If motoring were merely a luxury now, as it used to be 15 years or more ago, then the annual output of cars in America would perhaps be 100,000 or less. The world has taken a luxury offered to it and used that luxury as a necessity. It is time that the true reason for the enormous demand for cars was appreciated and reflected in automobile engineering and design.

Scrap Metal Prices

NEW YORK, Dec. 26—Following are prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age:*

	Cents Per lb.
Copper, heavy and crucible	22.00
Copper, heavy and wire	21.00
Copper, light and bottoms	19.00 to 19.50
Brass, heavy	14.25 to 14.50
Brass, light	10.50 to 10.75
Heavy machine composition	20.00 to 21.00
No. 1 yellow brass turnings	14.00 to 14.25
No. 1 red brass or composition turnings	17.50
Lead, heavy	5.75
Lead, tea	4.25
Zinc	5.00

Picard Employees Dine

NEW YORK, Dec. 27—Seventy-four employees of the J. A. Picard Co. attended the organization's annual dinner last night at the Cafe Des Beaux Arts. An address was made by Vice-President Waller, of the Gotham National Bank. A silver plaque was presented to A. J. Picard and a cigarette case to General Manager Harry Williams.

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A Department of

BETTER MECHANICS

No. 50

Speedometer Testing, Care and Installation

By S. T. Williams

IN spite of the fact that most car owners cannot estimate their speed within several miles, many of them insist that something is the matter with their speedometer, when in fact it is registering correctly.

In cases of this kind a timed test run over a measured course, made at a constant speed, is about the simplest method of checking the accuracy of the instrument. But to do this requires time, and a shop method is not always advisable.

Where the drive is from the front wheel, the driving wheel should be jacked up. When spinning, the various parts can be examined under working conditions, and a fairly accurate test of the speedometer operation can be made.

The method of performing this operation is as follows: A chalk mark is placed on the rim of the wheel, and the wheel turned as fast as possible. At a signal, one person reads the speedometer, and another counts the revolutions for one minute as timed by a stop watch, or second hand of a watch. The number of revolutions of the wheel, and the speedometer reading at the start and finish are noted. By adding the two speedometer readings, and dividing them by two, the average speed as recorded by the speedometer is determined.

How to Obtain the Speed

The actual speed may be obtained from the chart in Fig. 1. Supposing the revolutions in the minute to have been 94, a horizontal line is followed until it meets the slanting line representing the diameter at the front wheel. Dropping down vertically, the speed is seen to be 11.6 miles per hour—which should correspond to the speedometer readings. As stated, if carefully made, this test is quite accurate, and requires little time.

A method used in Stewart speedometer service stations for testing speedometer heads is most accurate but requires special equipment. This is shown in Fig. 2, and comprises a speedometer known to be accurate, driven from the same shaft as the one being tested. The shaft itself is driven from a friction wheel operated by an electric motor, and the speed may be varied throughout the speedometer range.

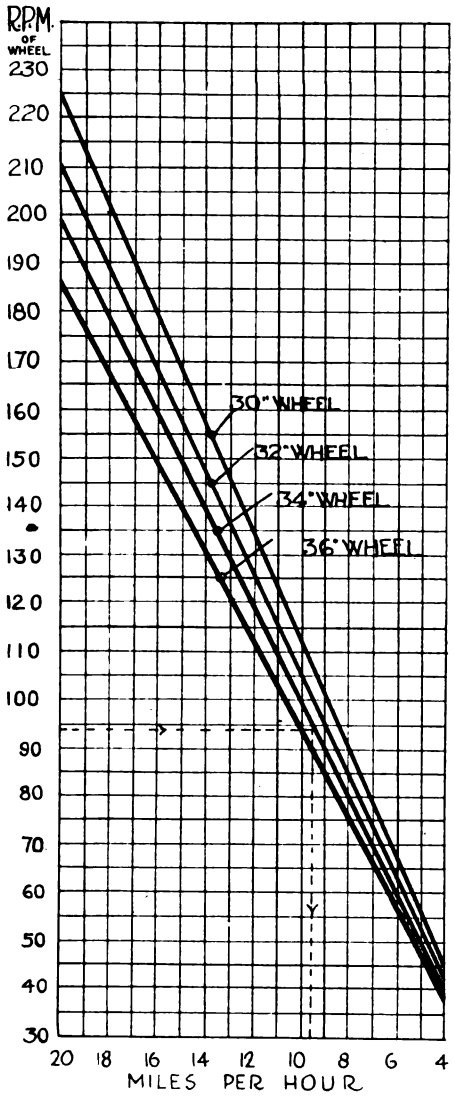


Fig. 1—This chart shows the m.p.h. for any number of r.p.m. of the wheels. It may be used in testing speedometers

Speedometer Troubles

When the speedometer does not operate satisfactorily about the last place to look for the trouble is in the speedometer head. The order of tracing through the drive system, when of the front wheel type, is shown in Fig. 3, and the same order applies in general to any type of drive.

The indications of trouble are dial or pointer vibration, or failure of the instrument to register. Starting with the road wheel, examine the parts in the following manner:

Road Wheel Examination

With the front wheel jacked up, and spinning, the road wheel and the pinion wheel should operate smoothly, and without appreciable noise. The gear and the pinion if meshed too tight or too loose will cause the needle to vibrate. Any looseness of the road wheel or steering knuckle will likewise cause vibration. On Stewart speedometers the space between the road gear and pinion gear should be 1/16 in., and the same applies in general to all others.

Pinion Gear Examination

The pinion gear on the installation may not be of the same pitch as that of the road gear. This will be indicated by failure of the two driving gears to mesh properly. Both the driving gear and the pinion gear usually bear the pitch number of the teeth and these should correspond. Another point of failure in the pinion gear is that the cotter pin retaining it to the swivel gear shaft may fail to catch, so that the gear rotates without

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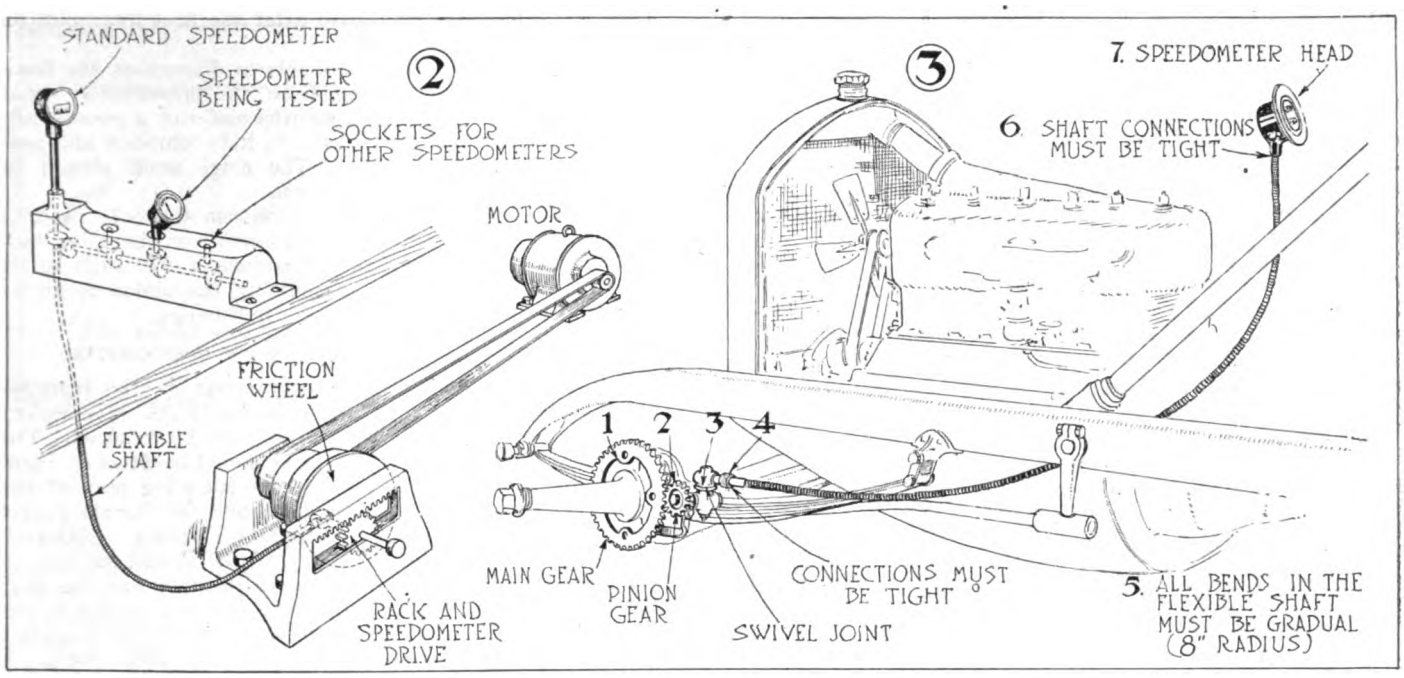


Fig. 2—This is the way speedometers are tested in the larger service stations. It shows accurately whether the head is right or wrong

Fig. 3—The points to be examined in inspecting a speedometer. The head is the last thing to be examined as it is rarely at fault

driving the shaft. A new gear is then necessary.

Swivel Joint Gears

A loose clamp or locking of the parts due to insufficient lubrication will cause the pinion gears to become stripped, and prevent the instrument recording. In this case new swivel joints should be provided, and the one provided should be of the correct ratio, and a duplicate of the one removed. This should be lubricated every 500 miles.

The Flexible Shaft

A most common cause of intermittent or vibratory speedometer operation is looseness at the point of attachment of the flexible shaft with the swivel joint, or with the speedometer head. These should be screwed up tightly so that the drive is continuous, and not intermittent. In the shaft itself several points may cause difficulty. The shaft may be broken, and if broken, effort should be made to determine the cause, as breakage from wear rarely occurs.

This is ordinarily by a too sharp angle in the flexible shaft, lack of lubricant, or by a binding of the shaft between some of the working parts. It should extend with a smooth curve from the swivel joint to the speedometer head, and be free from binding contact with any part, regardless of the angle of the wheels. And of course the shaft should not be so long that it drags on the ground, or makes any unnecessary curves. At all points of passage through metal parts the shaft should be protected to prevent wear.

From time to time the flexible shaft should be removed, cleaned and lubricated. On some installations oil is used, but the common method, after cleaning, is to pack the driving shaft with graphite grease. This possesses about the right consistency, as a heavy grease would cause friction in the case, and a light grease or oil would work through the case and leave the shaft dry. New lubricant should be applied at least every 6 months.

The Speedometer Head

Speedometer head repair is too complicated for the average repair shop, and should not be attempted. When it is impossible to locate the trouble elsewhere, it should be returned to the maker, or to a speedometer service station. But in most cases the head is not at fault, and the trouble will be located as described above. Though each of the difficulties mentioned are transferred to the head, and indicate trouble in the head, the head should be the part that is suspected last.

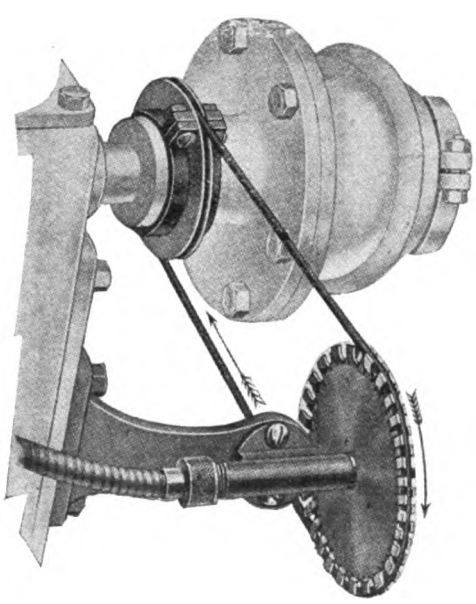


Fig. 4—This is a wire belt-drive installation used on Van Sicklen speedometers

Stewart Speedometers

In all Stewart speedometers with front-wheel drive the road wheel gear should have twice the number of teeth that there are inches in the diameter of the wheel. For example, if a 34-in. wheel is used the road wheel gear should have 68 teeth. If an oversized tire replaces the 34-in. tire—one 35 in.—the road wheel gear should be changed to one having 70 teeth.

With an oversized tire unless the road wheel is changed the speedometer will register too low.

Invariably the pinion gear should have 16 teeth when installed on the front wheel. It should, however, have the same pitch as the road wheel, otherwise it will be quickly worn out and will become noisy. In installing a road wheel great care must be taken to secure it concentrically with the wheel, otherwise it will alternately bind on the pinion gear. In doing this, calipers should be used to gage the teeth of the wheel accurately with the center, and in some instances spacers must be used to hold the gear away from the wheel.

The main point to observe in all speedometer installation is to be certain that the parts used are proper for the car in question.

When ordering speedometers or speedometer parts the make, model, number of the car, size of wheels, etc., should be clearly specified. Otherwise brackets, clamps, etc., will not be right. Points indicated in the testing and care of the speedometer should be observed in the installation, and generally speaking the

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flexible shaft should not be bent to form a curve of less than 8 in. in diameter.

Van Sicklen Speedometers

Van Sicklen speedometers are made with four types of drive. The first is the front-wheel drive; the second, the transmission drive from a worm gear behind the gearbox; the third is from a flange or up on the universal joint at the rear of the gearbox, which carries a gear driving pinion held by a bracket to the gearbox case, and the fourth, shown in Fig. 4, is of the wire belt driven type.

The steps to follow if there is trouble in the speed registration or mileage recorded is to drive the car over a measured course two or three times after setting the trip odometer to zero. If it is found that the mileage recorded does not agree with the season it is apparent that the owner has changed the size of his tires or gear ratio, or else the wrong gearing for that car has been installed. It is necessary that a flexible shaft be driven the required number of revolutions.

The majority of Van Sicklen speedometers are driven at a speed of 1500 revolutions per mile, that is, the flexible shaft has to turn that many revolutions per mile to register the mileage and speed accurately. On speedometers fitted with the 75-mile speed drive instead of the 60, the shaft is driven 1200 revolutions per mile. On still others the shaft is driven 2550 revolutions per mile. It is necessary that the elbows used should have the correct ratio.

Standard Speedometers

In general the method of installation and maintenance of the Standard speedometer is covered above. When installing an F-500 speedometer on a Ford car the speedometer should be set so that when the hand is pointing at five miles it is horizontal with the top of the board. On 1917 Fords there is no hole through the engine pan for the speedometer shaft and the shaft is brought up to the head back of the engine pan at the right.

As the edge of this pan extends behind the crankcase it will cut the flexible shaft in two in a short time *if it is not turned up.* Therefore, the edge of this pan should be bent upward with a blunt instrument. A slight vibration of the registering needle immediately after installation is not serious. In most cases it will cease after the first five miles on the road.

It is advisable to disconnect the flexible casing from the speedometer head after two months and run a good grade of engine oil into it to lubricate and prevent rust. The drive itself should be oiled every week.

Particular attention must be paid to keeping the cap-screws on the drive support tight; otherwise it will shift in its position, permitting the pinion to strike the bolts in the hub flange.

Corbin-Brown Speedometer

Detailed instructions on the installation of this speedometer are unnecessary if the above directions be followed. The slot of the cable should be fitted at right angles to the corresponding part of the speedometer head and the ferrule should be fastened tightly in place. Likewise, clearance of 1/16 in. should be left in meshing the teeth together and the gear bracket should be fastened tightly in position. Only two parts of the complete instrument require lubrication, the cable and the swivel gear. These should be thoroughly packed with grease every 6 months.

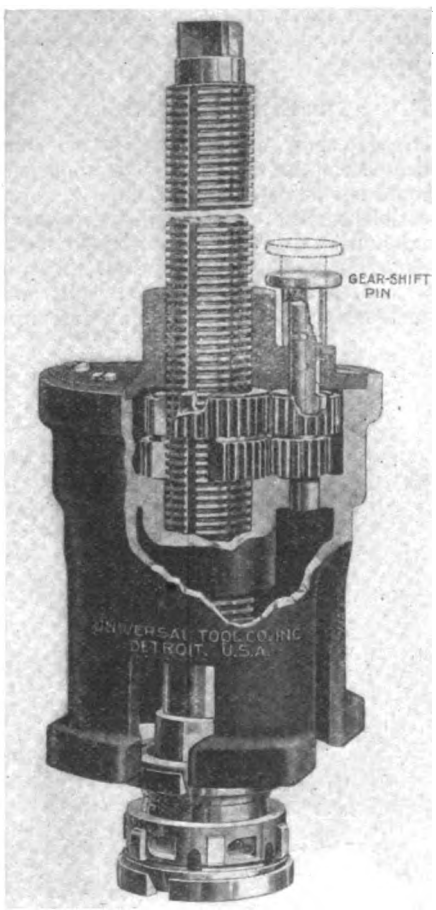
Tool for Reboring All Cylinders

THE Universal Tool Co., Inc., 916 Beaubien St., Detroit, manufacturer of the Universal Cylinder Reboring Tool, is now manufacturing an improved, similar tool. It permits reboring cylinders having connecting rod clearance at the bottom, without chattering or scraping that was possible with the former tool, and enables cylinders having deep scores or an oil hole through the side to be rebored without difficulty.

The improved tool operates upon exactly the same principle as the former one, a cutting head being rotated by a hand-operated screw spindle held in a metal support. There are six hardened steel cutters instead of four as before. Hence when one cutter is passing an opening and is not removing material, five other cutters are in contact with the cylinder walls and are removing material. Thus there is no opportunity for the head to change its relative position in the cylinder and bore a hole otherwise than dead true.

All V-thread bearings have been discarded as a means of holding the various parts in alignment. The threads on the main or operating screw are now square with six threads to the inch pitch. This gives the operating screw 4½ in. of bearing surface so there is no possibility for it to spring out of alignment.

The feed is by four gears, one driven by the spindle and operating two smaller gears that in turn rotate a nut gear on the spindle in the direction in which the spindle is being rotated, but somewhat slower. By this a feed of .034 in. per revolution is possible. The two smaller gears are provided with a shifting pin so that in bringing the cutter back to the original position, the full six pitch is used.



The Universal tool may be used to rebore cylinders from 2½ to 5⅛ in. in diameter on any engine. Approximately 2 hours are required to rebore six cylinders

A front wedge ring is used to guide the cutter concentrically in the cylinder and another wedge ring is supplied that follows the head at the top and offers additional support.

Both in the tool adjustment center and in the point of attachment of the boring head to the spindle, threads have been discarded as a means of keeping the parts in alignment. The mating parts are hardened steel and ground to fit into bushings so that alignment is independent of the threads which secure the parts and permit adjustment as formerly.

The Universal tool may be used to rebore cylinders from 2½ to 5⅛ in. in diameter on any engine. Approximately 2 hours are required to rebore six cylinders, or a Ford may be rebored in about 1½ hours.

All parts of the device are made according to gage measurements and are interchangeable. The cutting tools may be re-ground in a shop provided with the necessary equipment, but the best plan is to exchange them for a new set of tools at the factory. This can be done for a cost of approximately $2 and the resharpened tools will rebore from 50 to 75 cylinders.

The standard charge throughcut the country is about $1 per inch of cylinder diameter for the reboring alone, excepting on Fords. All factories with few exceptions carry standard over-sized pistons, and the tool may be readily set to rebore to these standards. The price of the tool is $150.

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Unpaid Notes

Editor Motor World: Please give your opinion on the following agreement:

Bloomsburg, Pa., Oct. 12, '15.

C. A. W., Dr. to C. S. Gheen for Studebaker truck No. 466,489 and supplies	**$907.00**	
Cash	**100.00**	
	$807.00	**$807.00**

Balance to be settled for at time of sale by series of notes. Title of car to remain with said C. S. Gheen until settled for.

Signed, C. S. Green—C. A. W.

March 18th, Cr. checks $200.00 and $100.00	**$300.00**	
April 21st, Cr. check	**150.00**	
July 14th, Cr. check	**74.85**	
July 14th, Dr. by bill for lights and sundries to date		**$17.85**
	$524.85	**$824.85**
		524.85
Balance due		**$300.00**

The notes were to be given when he sold horses and wagons at public sale, but the sale did not turn out well and the notes were not given, but I accepted payments as he could make them.

During the summer of 1917 Mr. W. went into bankruptcy. The business has been run since by a trustee.

I notified them at once of my claim on truck and not to sell same.

Can I hold or retake the truck after refusal to settle for same?—C. S. Gheen, Bloomsburg, Pa.

The best thing you can do in a case like this is to put your claim in the hands of a local attorney at once. If you do this he can take the matter up with the trustee on your behalf and see if the latter is willing to surrender the truck.

Who Pays?

Editor Motor World: Our business includes a motor bus line and taxi service, and since reading several articles on "The Law" by your Mr. Kaiser, it has occurred to us to think about what the outcome would be should an accident occur to one of our cars and some of our passengers seriously hurt.—Joseph P. Payne, Quogue, N. Y.

Answer—The outcome of injuries sustained by a passenger on a motor bus line would naturally be a lawsuit against the persons who owned the line. The outcome of the lawsuit, however, would not be so easy to determine, as it would very naturally depend on whether the driver of the bus was negligent or whether the negligence of the driver of some other vehicle caused the accident.

It is very important if you are running a bus line or a taxi service that you be sure that your drivers are both competent and careful, because, if accidents occur, the courts will say that the driver's negligence is your negligence and you will have to stand the consequences by paying for injuries which may be sustained through incompetence and unskilfulness or carelessness.

Some Mix-Up!

Editor Motor World: A friend is operating a garage and handling cars. One Sunday one of the boys asked for a car to take a trip with his brother-in-law and they drove the car about 25 miles. When they reached the stopping place the brother-in-law and his wife went to visit friends and the other chap drove the car out into the country and did not return until late in the evening. On his return he and his brother-in-law quarreled and he told his brother-in-law to take the car and get back the best way he could. Finally the former started the car on the homeward journey and then quit. He hasn't anything to settle with. The brother-in-law claims that he will not settle, although he has plenty of means to pay for the car. Please advise what can be done in the matter.—E. H. Robinson, Mason City, Iowa.

Answer—You do not state in your letter just what the garageman is asking the borrower of the car and his brother-in-law to settle for. Was there an accident? Was the garageman's car injured?

If the garageman's car was injured while in the possession of the borrower, the borrower would be responsible for lack of ordinary care to preserve the property on his part. Of course if the brother-in-law did not borrow the car and merely went as a guest of the borrower, he very naturally would not be responsible for damages to the car unless they were caused by him in some way.

The Unreliable Driver

Editor Motor World: Recently had an experience which has caused me to investigate the reliability of a driver. Started for our home town one morning about four weeks ago, and as I got into the city (Streator, Ill.) was driving east on the right side of the street. Came to one of the crossings there were two cars coming from north, one on the right side of the street and the other, a truck, on the left. I drove on until I got opposite the truck and I thought he would hit me so turned up on curbing, struck a tree, damaging the right fender, light, spring and radiator.

The bill for repairs is $56. I went to the merchant who owns the truck and told him how his driver got me confused being on the wrong side of the street and further did not give me any signal to go ahead, although he stopped when he saw me drive up on curbing. This merchant carries an insurance for liability accidents. He said if his company would do anything for me I should get it to pay damages. He got word from the company they would not be responsible because the driver did not hit me. After his company refused to pay anything I asked him to meet me half way, but he refused me and said if I had put my brakes on in time I would not have damaged the car. I have not asked the advice of a lawyer, but our garageman said he should meet half of the expenses.

What do you think and advise me to do? I do not want to get in any deeper with expense and feel I have a lot to be thankful for, as no one was injured.—Mrs. William A. Coe, Ancona, Ill.

Answer—I am not at all surprised that the insurance company refuses to pay your claim. It would be quite unusual for an insurance company to pay a claim of this kind when the insured car caused no direct damage. Of course it is impossible to tell you whether or not you would succeed in recovering a judgment if you instituted suit. All I know of the accident is what is contained in your letter. I suggest that if you feel like proceeding with this matter you put your claim in the hands of some local attorney upon an agreement that he handle it on a contingent basis; that is to say, if you succeed in recovering judgment you will give him part of it—say one-third or one-half, and if you fail to recover judgment he is not to charge you any fee.

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Repairshop Shortcuts

From The Motor World Roadman

No. 1502—FENDER STORAGE RACK

Due to the shape and high finish, it is not an easy matter to store fenders efficiently and without marring. A rack permitting this to be done comprises a row of wooden uprights to which are fastened a series of inclined cross arms. These arms are placed very closely together so that the neighboring fenders are barely separated. In this position the desired fender may be quickly obtained without disturbing or marring the rest. Ordinarily the entire rack should be covered with cheesecloth to prevent the accumulation of dust on the fenders.—Guy O. Simons, Simons Sales Co., Overland distributers, Detroit.

$1 a Shortcut

BEGINNING with the New Year, Motor World will pay $1 for each Repairshop Shortcut that is accepted for publication. The field is open to everyone, and shop men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.

No. 1503—IMPROVED WHEEL TRAM

Wheel trams appear in a countless variety of forms, but one possessing several advantages, namely, lightness and rigidity together with simplicity, is shown. It is metal throughout, the cross base being tubular conduit steel, and the uprights and braces flat steel strips all welded together. Half-inch bolts with locknuts are used to secure the wheel measurements at the front and at the rear.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1504—SPECIAL FRAME JACKS

A common method of supporting the car while removing the front wheels, axles or springs, etc., is to use an overhead hoist. Where this is not possible special frame jacks may be used to advantage. These are common auxiliary jacks somewhat higher than the standard and are placed just behind the rear spring shackle in the manner shown.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1505—EMERY WHEEL GUARD

When grinding on an emery wheel the workman should be provided with goggles, but due to their inconvenience and because of the haze in which the work is usually done this is not always done. By the provision of a metal guard completely housing all except the working face of the wheel, the workman is guarded at all times and the use of goggles rendered unnecessary. Such a guard comprises a hood built up of fender sheet metal soldered together and fastened to the grinding wheel bench.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1506—CLUTCH WASHING FILLER

On Paige cars the clutch is of the enclosed type and it is not an easy matter to wash it off or fill it with new oil. A special filler for this purpose facilitates the work. It is constructed by soldering a 2-ft. length of ⅝ in. copper tubing to the end of a small funnel and then bending the tubing so that it may be quickly inserted into the opening in the clutch. As the funnel then projects out where it is readily accessible the kerosene or oil may be readily inserted.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1507—WINTER TOP STORAGE

Winter tops may be stored by any garage at the rate of $10 per season, and in addition to keeping the top in better condition for the owner, returns the garage a nice income for a small investment. Racks are provided extending from the floor to the ceiling divided into compartments, each holding a top. The tops are so supported that they cannot be harmed and are covered with a cloth to prevent the accumulation of dust. Another advantage of this is that the top is stored in a place where the regular workmen are available for removal or replacement.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

No. 1508—CUSTOMERS' STORAGE LOCKERS

Occasionally the repairshop is accused of theft of various articles left in the customers' cars during repair work. This may be avoided by the provision of a set of lockers in which the customer places all his tools, robes, etc., before the car enters the repairshop. As he alone possesses the key to the locker, there can be no questions as to the safety of the goods. This is a step that has eliminated the source of much dissatisfaction between the owner and the service station.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

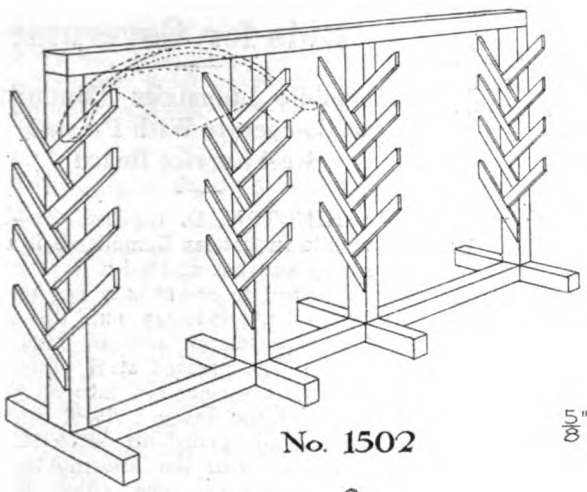
No. 1509—FOREMAN RECORD SLATES

Part of every foreman's work is to answer questions as to when the cars in his charge will be finished. It is therefore necessary that he be able to tell at a glance where each car is. As a record of this nature changes constantly from day to day a slate record is advisable. On this slate a plan of the repairshop is drawn and as any car enters a repair stall its number and the owner's name are recorded on the slate. As long as the car is in the shop the record is maintained, but as it is removed for a road test the time it left the shop is recorded on another slate, and if it is O.K.'d and sent to the delivery floor it is checked off. By these two slates the foreman can answer any 'phone inquiry in an instant.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

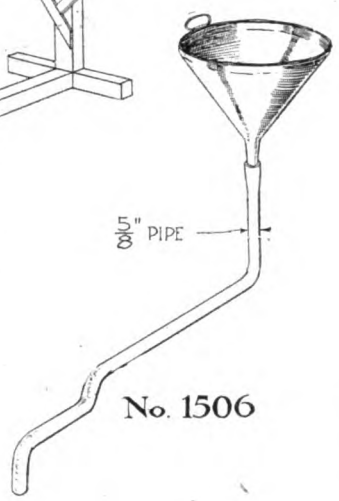
No. 1510—CAR CARD HOLDER

By the provision of a simple iron strip at the side of the doorman's desk a holder is provided for all work card cases that are not being used. Until this simple method of caring for the work card cases was employed, the cases were continually being lost and were scattered around the shop. By the above system they are always at the point desired when desired.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit.

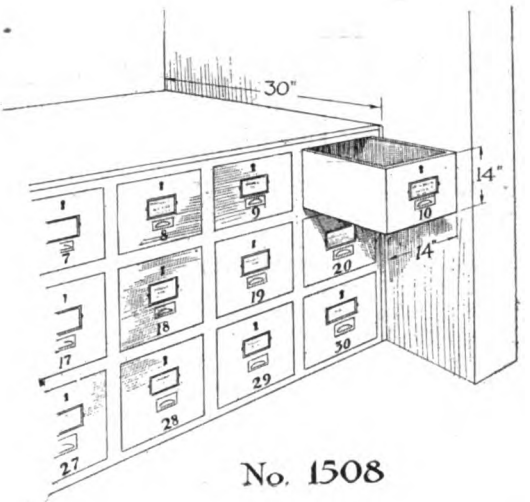
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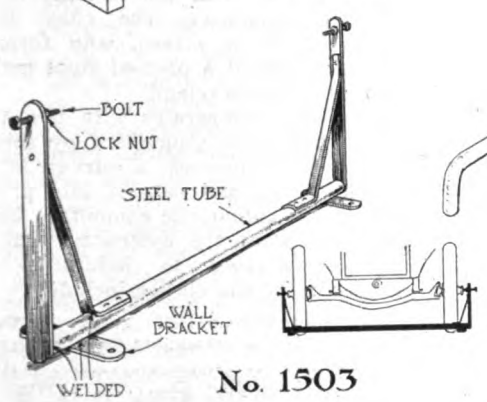
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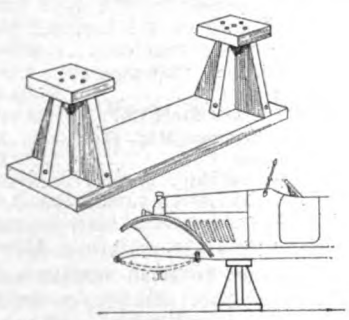
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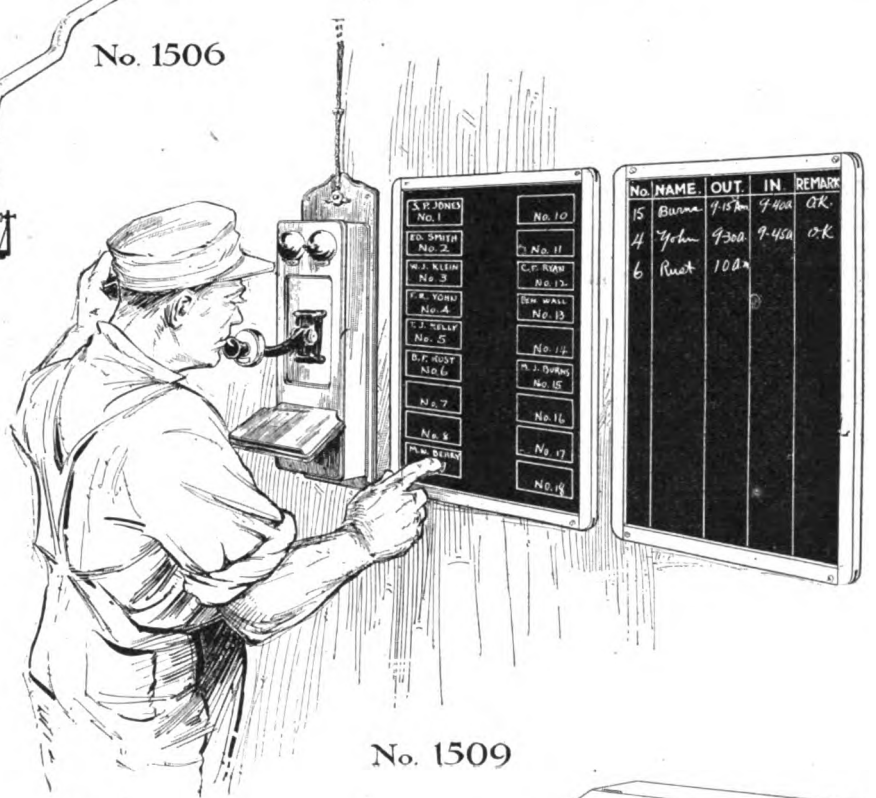
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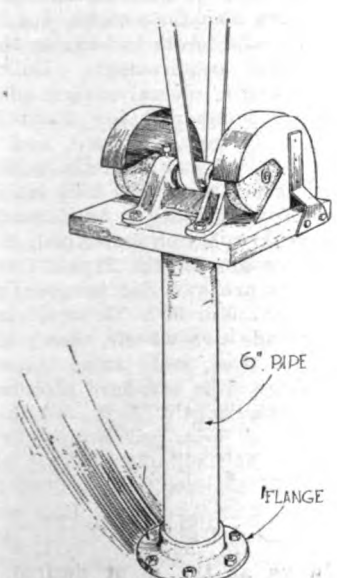
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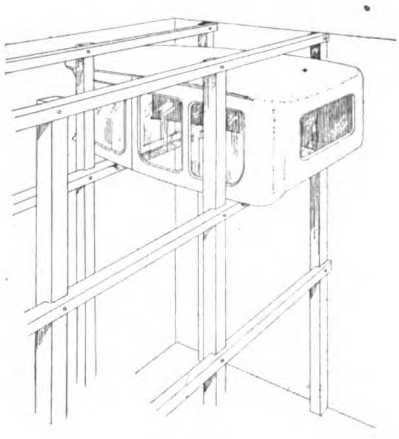
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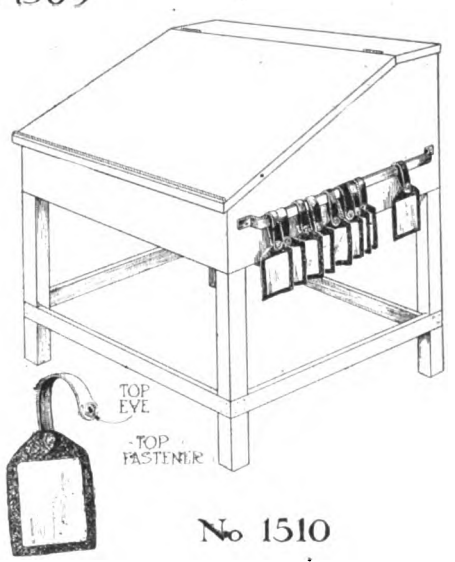
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Dealers: Try This Plan in Your Town

Montreal Association Adopts Suggestion Made by Motor World on Essay Contest

MONTREAL, Dec. 28—The Montreal Automobile Trade Association is promoting an essay contest in the public schools on the subject of "Why the Motor Car Is an Essential," as suggested on page 15 of Motor World of Dec. 5. Manager T. C. Kirby will carry the plan into all the schools.

The contest will be limited to children under 15 years of age and there will be a definite closing date for the submission of the essays. Prizes will be $10, $6 and $3.

The contest will, it is planned, school the children in research work. It will also, it is anticipated, cause them to ask many questions of their parents and bring to the attention of the grown-ups the fact that the motor car is one of the Dominion's most essential articles.

London Wholesaler Opens Here

NEW YORK, Dec. 26—S. Smith & Sons Motor Accessories, Ltd., London, has opened a buying office in New York at 154 Nassau Street, with J. H. Rose in charge. Smith & Sons, which was established in 1841, and has branches in South Africa, Australia, New Zealand, the Dutch East Indies and Siam, has been finding it difficult to secure goods in England because of the war. Its volume in 1917 was nearly $4,000,000. The office will be permanently retained here after the war.

Cleveland Trade Draws Together

CLEVELAND, O., Dec. 26—Within the past year eighteen passenger car and truck salesrooms have located within a radius of 1000 ft. of the new automobile section at the intersection of Euclid Avenue and East Forty-sixth Street. The latest of these is the Turner Truck Co., which has taken a 5-year lease on the entire first floor of the A. & B. Realty Co.'s new fireproof service building, for a total consideration of $30,000. Possession will be taken Jan. 1. Paul R. Turner is president and Frank Stanton secretary.

Pan-American Takes Lumb

CHICAGO, Dec. 26—The Lumb Motor Truck & Tractor Co., Aurora, Ill., has been taken over by the Pan-American Motors Corp., Chicago. The truck manufactured by the company will be styled Pan-American.

Duplex Earns $92,000

LANSING, MICH., Dec. 26—The annual meeting of the stockholders of the Duplex Truck Co., held Dec. 18, disclosed a net profit from Nov. 23, 1916, to Oct. 31, 1917, of $92,002.10. This was despite the fact that manufacturing was handicapped by the removal of the company from Charlotte, Mich., to this city. The total assets of the company are $1,113,854 and the current liabilities amounted to $122,822. The value of the material and supplies on hand was $287,893, and in finished trucks $86,500.

Pence Enters Banking Field

MINNEAPOLIS, Dec. 26—H. E. Pence, of the Pence Automobile Co. and president of the Minneapolis Automobile Trade Association, is leading incorporator of a bank to be opened on automobile row March 1. The Lincoln National Bank, the only one of that name authorized, is to have $250,000 capital and $50,000 surplus.

Oakland Gets 50 Freight Cars

PONTIAC, MICH., Dec. 26—The Oakland Motor Car Co. has obtained 50 new Northern Pacific freight cars for motor vehicle transportation. These are being loaded for immediate passage to Seattle and Portland. Each freight car will carry 5 passenger cars; there will be a delivery of 250.

Packard Starts Trucking Exchange

DETROIT, Dec. 26—The Packard Motor Car Co. has established a Detroit Trucking Exchange, to serve as a truck clearing house. Owners of trucks are listed and when a company requires an additional truck, the trucking exchange is advised and obtains an idle truck. This service, which is performed without charge, will relieve terminal and warehouse congestion, help the freight car situation and keep material moving.

Canada Wants Winter Tops

MONTREAL, Dec. 26—Detachable tops for motor cars are meeting with an unexpected and unprecedented demand in Montreal territory, according to local dealers. "This year for the first time we are receiving and shipping tops in carload lots," says W. Jenning, president of the Montreal Automobile Trade Association. "Country dealers are showing an unexpected interest in the tops."

With the farmers all over the country just beginning to reap the financial benefit of the 1917 grain crops, there is a strong possibility that the total number of automobiles in Canada will pass the 200,000 mark before the end of 1917.

Portland Starts Campaign

PORTLAND, ME., Dec. 29—The Portland Automobile Dealers' Association has instituted a campaign of activity which began Dec. 19 with a "Get Busy Dinner" in the Falmouth Hotel. Chester I. Campbell, secretary of the Boston Automobile Dealers' Association, outlined the work that the active Boston organization has done, and pointed out ways in which the Portland dealers may work.

Plans to Facilitate Bids for Government

Automobile Industries Committee to Co-operate With Pressed Steel Service Board

WASHINGTON, D. C., Dec. 26—The Automobile Industries Committee is now under way and has started a number of plans designed to co-ordinate the manufacturers of the industry and the Government departments seeking bids for war work. The pressed steel plants of the country have combined into an association called the Pressed Steel Service Committee and opened an office in the same building with the Automobile Industries Committee. The office is in charge of H. L. Green, who formerly was secretary of a pressed steel makers association in Cleveland.

This office co-operates with the Automobile Industries Committee by supplying a list of presses, a survey of the various plants and lists of idle presses so that the automobile committee knows where to place the contracts with the least disturbance to industry. The makers in the association include:

Acklin Stamping Co.	Toledo
American Tube & Stamping Co.	Bridgeport
Bossert Corp.	Utica
Boston Pressed Metal Co.	Worcester
Crosby Co.	Buffalo
Detroit Pressed Steel Co.	Detroit
Gier Pressed Steel Co.	Lansing
Geuder Paeschke & Frey Co.	Milwaukee
Globe Machine and Stamping Co.	Cleveland
Hale & Kilburn Co.	Philadelphia
Hydraulic Pressed Steel Co.	Cleveland
Ireland & Matthews Mfg. Co.	Detroit
Kales Stamping Co.	Detroit
Frank Mossberg Co.	Attleboro
Savage Arms Corp.	Sharon
Sharon Steel Hoop Co.	Sharon
A. O. Smith Co.	Milwaukee

It is planned to form similar associations among other makers in the forge, brass foundries and brass finisher plants and others.

The automobile committee has inaugurated a plan also for sending out bulletins to manufacturers informing them of Government requirements. Bulletin number 1 calls for several million adapters, bulletin number 2 for machining capacity for 75 mm., 155 mm. and especially 4.7 in. shells. Bulletin number 3, the last issued, calls for 4500 trailers for over-seas shipment, to be furnished during February, March and April, 1918. These trailers are for the Signal Corps, and contracts are awarded in quantities of 1500, 1000, 750 or 500. General specifications include two wheels, wood, 35 x 5, pneumatic tires, solid axles, tapered roller bearings, 5-in. standard structural channel frame, length 21 ft., width 49 in.; platform of ⅞-in. yellow pine, 21 ft. x 6 ft. 9 in.; half elliptic springs, 3 in. x 54 in.; solid channel tongue, 2000 lbs. capacity; no steering device. Bids must be in by 10 a.m., Dec. 31. Master blueprints will be furnished manufacturers receiving contracts.

Further bulletins will be issued as required. The committee prints drawings

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of block dimensions where possible, but in the case of blueprints does not publish these but sells those it can at cost to makers desirous of securing them. Many blueprints are not even displayed except to reliable manufacturers considered trustworthy by the committee and the Government in order to maintain secrecy about important military affairs.

Milwaukee Plans Big Show

MILWAUKEE, Dec. 27—With a full understanding of the situation created by the state of war, but as full an understanding of the necessity of keeping business as usual, or more active, the Milwaukee Automobile Dealers, Inc., has mapped out a progressive and intensive campaign for the new year, which will be inaugurated with the most comprehensive show that has ever been staged in Milwaukee.

The show will last 10 days, beginning Jan. 16 and closing Jan. 25. It will be held in the Auditorium. The first 7 days will be devoted exclusively to passenger vehicles and the remaining three days to an exclusive commercial car show. The exposition will be Milwaukee's tenth annual motor show. All previous shows have been combinations of passenger and commercial car displays and none has run over a period of more than a week. Extending the first war-time show to ten full days is an enterprising but daring innovation, but that is to be expected from the progressive spirits that guide the M. A. D., which stands in the front rank of local dealers' associations of the United States.

Ogg Heads Springfield

SPRINGFIELD, ILL., Dec. 27—Basil Ogg was elected president of the Springfield Motor Car Dealers' Association at a meeting held this week. F. W. Gottlieb, representative of the Chicago Auto Trade Association, was present and made an address upon the subject of used cars and trade organizations. The Springfield dealers are desirous of establishing uniform prices for used cars. Steps are being taken to secure co-operation among the dealers in this direction.

Charles J. Klein Dead

Charles J. Klein, designing engineer of the Cutler-Hammer Mfg. Co., Milwaukee, and one of the best known electrical engineers in the United States, died suddenly at his home in Milwaukee on December 17, at the age of 55 years. Mr. Klein came to the main office and works of the Cutler-Hammer in 1908 from its New York plant. He was responsible for many of the notable inventions and designs of electric controlling devices manufactured by the company and contributed much to the perfection of the C-H magnetic gearshift for motor vehicles. Mr. Klein was a close friend and disciple of Thomas A. Edison and Christian P. Steinmetz.

Truck Manufacturers Adopt Drive-Away Plan

J. C. Wilson Co. and Dodge Brothers Find It Saves Time and Expense

DETROIT, Dec. 26—Truck manufacturers are following in line with the passenger car manufacturers and using the drive-away method of getting the trucks into the hands of dealers. The J. C. Wilson Co. is now driving away trucks as far as Boston, Philadelphia, Baltimore and other points. It is stated that in spite of the road conditions the saving in time and freight is considerable, even though freight car equipment were available.

Careful records were kept by the Baltimore dealer on his last drive. The trucks were the 2-ton type and each carried a certain amount of parts for the Baltimore service department. The distance of 543 miles was covered in 4 days, the trucks passing through Toledo, Cleveland, Youngstown, Pittsburgh, Uniontown, Cumberland and Baltimore.

The average number of gallons of gasoline per truck consumed during the trip was 62, and each used 1 gal. of oil. The total expense per truck, including not only the immediate expenses but also the insurance, mechanical wear, proportional to the yearly overhead, etc., was $62.91. The cost per day per truck was $15.56, giving a mileage cost of .116 cent, or a ton-mileage of .058 cent.

Dodge Brothers are likewise delivering the new commercial car overland, and this will be followed the entire winter regardless of weather conditions. Already cars have been delivered to Lawrence, Kan.; Atlanta, Ga.; Hannibal, Mo.; Paris, Tenn.; Waterloo, Iowa; Cincinnati, Ohio; Davenport, Iowa; Johnstown, Pa.; Terre Haute, Ind., and Chicago, Ill.

Complete Two Nelson Trucks

SAGINAW, MICH., Dec. 27—The Nelson Bros. Co. has completed its first 2-ton truck and fifty more are planned within the next two months. These are to be styled the "Jumbo" trucks, and an addition will soon be made to the factory so that nearly all the units can be manufactured. At present the truck is being assembled. The price has not yet been determined.

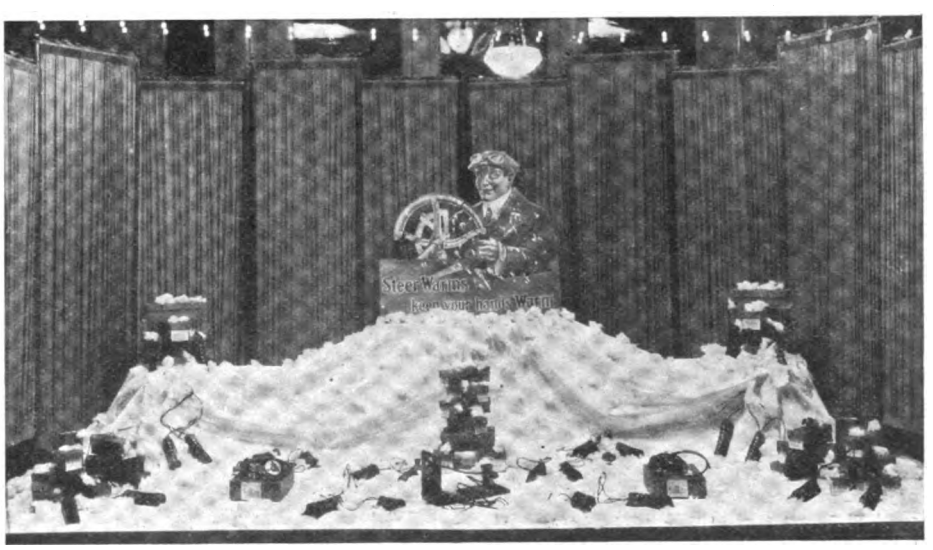
Colorado Pushing Organization

DENVER, Dec. 28—The Rocky Mountain Automobile Trades Association has started an active campaign for membership, in charge of Business Manager Harry G. Moock. Letters are being sent out to dealers and garagemen and local associations are being formed and old ones revived. Work thus far has been done with the Colorado Springs Auto Trades Association, Colorado Springs; Pueblo Auto Trades Association, Pueblo; Arkansas Valley Garage Men's Association, La Junta; Colorado-Mexico Auto Trades Association, Trinidad; Fort Collins Auto Trades Association, Fort Collins; Fort Morgan Auto Trades Association, Fort Morgan; Longmont Auto Trades Association, Longmont; Sterling Auto Trades Association, Sterling.

Membership is Class A and Class B, Class A costing $10 more than Class B, being open only to automobile dealers and including membership in the National Automobile Dealers' Association.

Case Holds Tractor School

ST. LOUIS, Dec. 27—One hundred and fifty farmers gathered here last week to learn more about running tractors. About 10 per cent were prospective tractor owners, the others owning machines. The school was held in the assembly room of the J. I. Case T. M. Co. No admission fee was charged and no questions asked as to what tractor the pupil used or if he used any, until the end of the session. Two sessions were held daily.



THIS STEER-WARM DISPLAY was set up by the Interstate Electric Co., New Orleans, which is the maker of this device. As this issue of Motor World is being printed it seems as though there ought to be a pretty good demand for warming devices of various kinds

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

W. E. Yale is Michigan distributor for the Fruehauf Trailer Co. He was formerly with the Studebaker, and Overland.

A. G. Dulmage, for many years business manager of the Arizona Gazette of Phoenix, has severed his connection with the paper to become the assistant general manager of McArthur Brothers, one of the largest automobile concerns in the state.

C. J. Pomeroy, formerly in charge of the operating department of the Seattle branch of the B. F. Goodrich Co. has received the commission of Captain in the United States Army. He will be stationed at Camp Lewis.

Wetmore Hodges has been elected vice-president and general manager of the Haskelite Co., Grand Rapids.

George J. Dunham, formerly president of the Royal Tourist Co. and recently sales manager for J. H. MacAlman, Stearns-Knight dealer, Boston, has been appointed manager of the New England branch of the Standard Steel Car Co., Boston.

J. V. Schenck, formerly Eastern district sales manager for the Scripps-Booth, has been made sales manager of the Scripps-Booth Co. of New England, with headquarters at Boston.

S. S. Toback has been appointed general manager of the Redden Motor Truck Co., Detroit. He was formerly with the A. Elliott Rannay Co., New York, and a Hudson dealer.

Joseph Berg, former chief engineer of the Stewart-Warner Speedometer Corp., Chicago, has joined the Champion Ignition Co., Flint, Mich.

C. L. Allen has joined the Chevrolet Motor Co., having resigned as production manager of the Allen Motor Car Co. L. A. Sumner, former general factory manager, is now assistant general manager of the Allen Co.

Raphael Semmes, vice president of the Semmes Motor Co., Washington, has received a first lieutenant's commission in the Signal Corps. He will probably be attached to the non-flying division of the aviation division.

C. J. Elston, service manager of the Saxon Motor Car Co., Detroit, has resigned to become sales representative of the Asbestos & Rubber Works of America, New York.

Ferris B. Fick, purchasing agent of the Saxon Motor Car Co., has resigned to become purchasing agent for Chalmers material at the plant of the Maxwell Motor Co., Detroit.

Charles E. Stahl has been made assistant general manager of the Connecticut Telephone & Electric Co., Meriden. He will continue the direction of the sales department.

P. P. Hinckley has been transferred from the sales department of the Connecticut Telephone & Electric Co., Meriden, to the position of purchasing agent of the company.

A. W. Sayre has been appointed district manager of the Willard Storage Battery Co.'s factory branch at New York. He was formerly in charge of the Willard service station, Rochester, N. Y.

Gregory Flynn, for seven years sales manager of the Rajah Auto Supply Co., Bloomfield, N. J., has been appointed assistant to the president of the Edward A. Cassidy Co., New York.

34 New Accessory Exhibitors

NEW YORK, Dec. 24—Thirty-four accessory manufacturers have been added to the list of exhibitors for the National shows. This brings the total number to 252 as compared with 227 for the 1917 show. The new exhibitors are:

Chicago and New York

Arrow-Grip Mfg. Co.....Glen Falls, N. Y.
Black & Decker Mfg. Co.....Baltimore
Challoner Co.....Oshkosh, Wis.
Guarantee Liquid Measure Co....Pittsburgh
Macbeth-Evans Glass Co.....Pittsburgh
Menominee Elec. Products, Inc....New York
Pratt Mfg. Co.....Chicago
Sunderman Corp.....Newburgh
Water Gas Carburetor Co.....New York
Wire Wheel Corp. of America.....Buffalo

New York Only

Adams & Elting Co.....Chicago
Art Metal Works.....Newark, N. J.
Auto Pedal Pump Sales Corp.....New York
Edward G. Budd Mfg. Co.....Philadelphia
Carburetor Mantle Co.....New York
Coffield Tire Protector Co.....New York
Eisemann Magneto Co.....Brooklyn
Fryer-Auster Co.....New York
Kales Stamping Co.....Detroit
George W. LeCompte Co.....New York
Otis Elevator Co.....New York
Peters & Herron Dash Co.....Columbus
Philadelphia Storage Battery Co.Philadelphia
Rives Never-Slip Auto Pedal Co..New York
Simmons Mfg. Co.....Cleveland
Sales Service Co.....New York
Titeflex Metal Hose Corp.....New York
Tri-ton Trailer Corp.....New York
Union Truck Mfg. Co.....New York

Chicago Only

Air Device Co.....Chicago
Gibraltar Jack Co.....New York
Globe Mfg. Co.....Battle Creek
McKinnon Dash Co.....Buffalo
Syracuse Universal Mfg. Co.....Syracuse

Ministry of Munitions to Purchase Supplies

WASHINGTON, Dec. 27—It is believed here that the President will create a Ministry of Munitions which will have complete power to purchase the necessary munitions. Members of the War Industries Board will be lieutenants, so to speak, to the Minister of Munitions. In all probability Daniel Willard, now chairman of the War Industries Board, will fill this new cabinet office. When the new division is organized the purchase of all motor trucks will come under its direction instead of the Signal Corps, the Engineers Corps, Medical Corps, Ordnance Department or the Quartermaster's Department, as is now the rule. The activity of the different army departments will be confined to operations in the war zone, and the industrial end will be turned over to the Ministry of Munitions.

More Men You Will Meet

ACCESSORIES

Stewart-Warner Speedometer Corp.—Astor—L. L. Banford; Manhattan—W. A. Gardener, D. F. Hyland, R. Karl, A. C. Marquardt; New York resident—F. M. White.

A. Schrader's Son, Inc.—Chatham, Room 110—Any representative present.

Sheldon Axle & Spring Co.—Astor—*F. L. Martin, *J. A. Young, A. M. Laycock, J. F. Armstrong.

JOBBERS

Goodrich-Lenhart Mfg. Co.—Astor—E. A. Goddard, John A. Colley.

Kliesrath with Simms

EAST ORANGE, N. J., Dec. 29—Victor W. Kliesrath, for many years chief engineer of Bosch Magneto Co., has acquired an interest in the Simms Magneto Co., East Orange, and after Jan. 1 will devote his entire time to the business in the capacity of consulting engineer. It is probable that new types of magnetos not made now by the Simms Magneto Co. will be added to complete a line of ignition equipment to meet every requirement.

New Batavia Rubber Officers

BATAVIA, N. Y., Dec. 31—Thomas W. Dynan, credit manager, and Maxwell H. Bochow, assistant treasurer of the Metropolitan Trust Co., have been elected treasurer and general manager, respectively, of the Batavia Rubber Co. Dynan succeeds C. M. Darvin, and Bochow fills the vacancy caused by the retirement of George W. Hodges of Remich, Hodges & Co. The company will open executive offices in New York.

Motor Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	45	50
*J. I. Case T. M. Co., pfd.	73	77
Chalmers Motor Co., com.	2	4
Chalmers Motor Co., pfd.	..	50
*Chandler Motor Co.	66½	67½
Chevrolet Motor Co.	93	95
*Fisher Body Corp., com.	20	34
*Fisher Body Corp., pfd.	70	87½
Fisk Rubber Co., com.	..	45
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2d pfd.	60	70
Firestone Tire & Rubber Co., com.	95	98
Firestone Tire & Rubber Co., pfd.	96	98
*General Motors Co., com.	97	98
*General Motors Co., pfd.	77	78
*B. F. Goodrich Co., com.	35	37
*B. F. Goodrich Co., pfd.	94	99
Goodyear Tire & Rubber Co., com.	135	140
Goodyear Tire & Rubber Co., pfd.	92	94
Grant Motor Car Corp.	1½	2
Hupp Motor Car Corp., com.	1½	2½
Hupp Motor Car Corp., pfd.	72	78
International Motor Co., com.	12¾	13½
International Motor Co., 1st pfd.	23	25
International Motor Co., 2d pfd.	15	25
*Kelly-Springfield Tire Co., com.	40	41
*Kelly-Spr'gfi'd Tire Co., 1st pfd.	72	80
*Lee Rubber & Tire Corp.	13½	14½
*Maxwell Motor Co., Inc., com.	23½	24½
*Maxwell Motor Co., Inc., 1st pfd.	54	55
*Maxwell Motor Co., Inc., 2nd pfd.	20½	22
Miller Rubber Co., com.	130	140
Miller Rubber Co., pfd.	95	98
Packard Motor Car Co., com.	95	103
Packard Motor Car Co., pfd.	92	96
Paige-Detroit Motor Car Co.	11	12½
Peerless Truck & Motor Corp.	11	14
Portage Rubber Co., com.	109	111
Regal Motor Car Co., pfd.	..	20
†Reo Motors Car Co.	14	16
*Saxon Motor Car Corp.	6½	7½
Springfield Body Corp., com.	..	..
Springfield Body Corp., pfd.	..	..
Standard Motor Construction Co.	7½	8½
Standard Parts Co.	..	78
*Stewart-Warner Speed Corp.	43	45
*Studebaker Corp., com.	45	46
*Studebaker Corp., pfd.	88	91
Swinehart Tire & Rubber Co.	16	26
United Motors Corp.	18⅞	19
*U. S. Rubber Co., com.	51	52
*U. S. Rubber Co., pfd.	93	94
*White Motor Co.	35	37
*Willys-Overland Co., com.	19	19½
*Willys-Overland Co., pfd.	72	75

*At close Dec. 29, 1917. Listed N. Y. Stock Exchange.
†Par value $10.

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Champion Plug Sees Silver Lining Only

Bigness of Future the Theme at Its Annual Sales Convention—Selling Instruction a Feature

TOLEDO, Dec. 27—Viewing optimistically the future for spark plugs and other motor essentials, the Champion Spark Plug Co. during its convention in Toledo on Dec. 17-22 started a campaign which, it is believed, will tend to create more confidence in trade circles.

Facts were submitted to those in attendance showing that the nation is not in the unprosperous state alarmists in various sections would have one believe.

Sixty members of the sales force together with a score of jobbing representatives from all sections of the United States and from Canada together with men of national prominence in advertising and motor circles were in attendance at this meeting.

Throughout, the members of the sales force were "sold" on optimism. No opportunity was overlooked to impress upon them that in spite of the war and other alleged discouraging conditions, the Champion company viewed the business outlook for the year 1918 with nothing but optimism. That the company anticipates a material increase in business was evident from statements made to the effect that extension plans have been made for increased production. The automatic machine capacity—machines that turn out the steel shells for spark plugs—will be practically doubled after Jan. 1.

The program for convention week included class meeting sessions, round table discussions, get-together meetings, indoor athletic meet, a trip to Detroit and various social functions.

The opening day, Monday, Dec. 17, was devoted to talks by officials of the company and an indoor athletic meet at the local Y. M. C. A. This meet was one of the outstanding features of the convention. Sixty odd men, including R. A. Stranahan and F. D. Stranahan, president and treasurer respectively of the company, appeared in the various events.

Tuesday was advertising day. The entire time was taken up by a complete outline of the publicity campaign the company will wage during the coming year, and with talks by men interested in various lines of advertising. Harris L. Corey, advertising manager, outlined in detail the schedule which has been arranged. During the sessions Albert de Montluzin, general sales manager of the Poster Advertising Co., and H. J. Mahin, sales manager of the O. J. Gude Co., addressed the salesmen on talks pertinent to advertising. The annual banquet was held Tuesday night.

Wednesday was set aside as jobbers' day. Officials and representatives of many of the larger jobbing houses in various cities were honored guests at the day's sessions and at the annual banquet which followed. Plans for co-operation between the manufacturer and jobber were discussed in detail during the meetings. Among the principal speakers who addressed the convention were: Harry B. Harper, of the Willys-Overland Co.; T. C. Rice-Wray, of the Mutual Life Benefit Insurance Co., Detroit; M. C. Leckner, of the Research Bureau of the Saturday Evening Post, and A. P. Fernald, of the War Camp Recreation Bureau.

Salesmen and jobbing representatives invaded Detroit on Thursday. During the forenoon they visited the plant of the Studebaker Corp. and in the afternoon made a tour of inspection of the company's porcelain factory. In the evening they were entertained at a dinner at the Detroit Athletic Club and later at a theater.

With the exception of a few conferences within the organization the convention closed on Friday. The day was devoted entirely to business.

Each day during the convention the company published a newspaper known as "The Champion Spark, for Champion Spark Pluggers," which is to become a semi-monthly publication, beginning Jan. 1. F. B. Caswell was in complete charge of the convention activities.

Torbensen Axle Co. Insures Employes

CLEVELAND, Dec. 27—The Torbensen Axle Co. gave each of its 500 employes a certificate of insurance as a Christmas gift. Those who have entered the service of the company since July 1, 1917, are insured for $250, this amount to be raised to $500 upon completion of 6 months' service. Those who have been with the company for more than a year are insured for $600, with an increase of $100 for each additional year of service until a maximum of $1,500 has been provided. This insurance was in force from noon of Dec. 24, and does not interfere with the Workman's Compensation as provided by the Ohio State law.

Fiat Absorbs Three Companies

TURIN, ITALY, Dec. 23—The Fiat Co. has absorbed three companies. They are: Ferriere Piemontesi Steel & Iron Foundries, capitalized at 9,000,000 liras; Officiene gia Fili Diatto Railways and Trams Rolling Stock Works, capital 4,000,000 liras, and Industrie Metallurgiche Torino Steel & Iron Works, capital 4,000,000 liras.

Kissel Contract to Garford

WASHINGTON, D. C., Dec. 29—The Kissel Motor Car Co. has been released from its contract for 500 Class B heavy-duty War Trucks because of its need for all facilities to handle contracts for four-wheel drive trucks recently received. The contract for the 500 B trucks was transferred to the Garford Motor Truck Co., making the Garford contracts for B trucks total 1000. It is rumored that two or three other concerns will be released from their contracts also.



THE CHAMPION SPARK PLUGGERS at their annual dinner did just what every other bunch of annual diners should do. They discussed how and why business should be bigger than ever if America is going to win in the world war

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Things Settle Down; Show the Big Topic

Conditions Better in Michigan—Coal Coming In—Car Production Still Going On

DETROIT, Dec. 28—In spite of the abnormal conditions that have at times seemed to threaten the automobile industry, conditions in the past week seem to have calmed down considerably, and the manufacturers are preparing to attend the New York show and get ready for the Spring business. Throughout the city and the state the coal situation has eased up, due partly to the holidays, but more directly due to receipt of coal shipments.

Recently 1800 carloads of coal arrived in Detroit and there is a prospect of eight or ten times that amount arriving in the next 10 days. Grand Rapids reports every dealer supplied, and 100 tons of coal on hand. The Sparks-Withington Co., Jackson, states that though the electric power company has only a limited supply of coal on hand, it has sufficient. This company also states a more cheerful outlook on the part of car manufacturers. Some time ago stop-orders on parts for manufacturers were more or less common, but recently orders have been coming in in a manner that indicates that they are getting their nerve back and going ahead on a square basis.

There is a strong possibility that the automobile and parts manufacturers of Jackson will form a shell company similar to that recently formed in Detroit. During the past week Mayor Sparks of Jackson has received a telegram from A. W. Copland asking if the manufacturers would be interested in forming such a company, to which the manufacturers replied affirmatively. A survey of the companies will be made and a committee may be sent to Washington to arrange the details.

The Harroun Motor Co., Wayne, is rapidly speeding its production up, and is now shipping 30 cars per day. Freight car and tool shortage, hindering the Detroit manufacturers, is less acute in Wayne, and Harroun reports no difficulty in that direction.

During the past week the Liberty Motor Car Co. has shown a marked expansion in its dealer organization, and the manufacturers are most optimistic for the coming season. Among the new agencies established are the following: F. E. Stuyvesant Co., Cleveland, O., which will have practically the entire state. A branch house is opened in Toledo, and later others will be established in Columbus and Cincinnati; J. D. Moore, Walla Walla, Wash.; Twin City Motor Car Co., Minneapolis, Minn.; Edgar F. Sanger Co., Milwaukee, Wis., and the Means Automobile Co., Des Moines, Ia.

As an example of the further working out of the drive-away problem, to relieve the freight car situation, two examples are cited whereby passenger cars have been delivered on trucks overland. In one case three twin-six Packard enclosed cars were loaded on Packard 3-ton trucks, and started on Dec. 24 for Baltimore, a fourth truck carrying a passenger car body. The second instance is of a Washington, D. C., cartage man that contracted to bring two Cadillacs back with him on two Packard 3-ton trucks he was driving back for his own use. Drive-aways are certain to increase, and in the case of trucks at least it is doubtful if any will leave without some useful load.

New Lancaster Tire Appears

LANCASTER, OHIO, Dec. 27—The Lancaster Tire & Rubber Co. of Ohio, which will take over the business of the Lancaster Tire & Rubber Co., a West Virginia corporation, has been chartered with a capitalization of $500,000 by Lancaster and Columbus capitalists. The officers of the company are Frederick A. Miller, president; E. E. Lerch, vice-president; Orr H. Williams, general manager and treasurer, and J. Lawrence Porter, secretary. These officers, together with F. J. Mackin of Columbus, C. S. Hutchinson of Lancaster and H. V. Blaxter of Pittsburgh constitute the board of directors. The plant, which has been in operation in Lancaster for some time, will be continued at that place. The general offices will be removed to Columbus. Much new machinery and equipment will be installed. The concern will continue the manufacture of the Lancaster Wire Grip and the Clingstone lines of tires.

Engineering Corp. to Solve Truck Problems

CHICAGO, Dec. 26—The Engineering & Sales Corp., 122 South Michigan Avenue, Chicago, has taken over the engineering problems and supervision of purchases of the Oklahoma Auto Mfg. Co., Muskogee, Okla., and of the Mutual Truck Co., Sullivan, Ind.

Leonard Veith Passes Away

NEW YORK, Dec. 26—Leonard Veith, secretary of Asch & Co., died last week.

Maxwell Maintains Driveaway Corps

DETROIT, Dec. 29—The Maxwell Motor Car Co. is maintaining a special force of from 75 to 100 drive-away men that are available at all times, and one driveaway during the past week is typical. Fifty Maxwell trucks, each loaded with a Maxwell passenger car, held the following schedule to Chicago, a distance of 287 miles:

First day, Detroit to Clinton, Mich., 55 miles.

Second day, Cilton to Coldwater, Mich., 65 miles.

Third day, Coldwater to Chicago, 175 miles.

The trucks arrived in the best of condition, and the passenger cars were delivered directly at the salesroom door in possibly better condition than if carried by freight. As stated, the Maxwell company has at hand a large crew of driveaway men, and for these a quantity of heavy, warm clothing is supplied. Girls are used for local deliveries, but the long distance work is too strenuous. About 37 girls are used at the Oakland Avenue plant.

Dealer Must Pay 5c with His Show Pass

Even Free Ticket Won't Get Him Into New York Exhibit This Year For Nothing

NEW YORK, Dec. 31—The dealer may get into the New York show for nothing this year but he will have to pay a war tax of five cents. He will present his dealer ticket at the box office with a nickel and will be given, probably, a small war tax ticket. This he will throw into the ticket box together with his dealer ticket.

Otherwise the arrangements are about the same as they were last year. To about 32,000 dealers have been sent three tickets each, entitling them to three individual admissions. While this arrangement caused some complaint from dealers last year, the percentage of complaints is said by the management not to be great enough to justify a change in the plan. Tickets were mailed out Friday and Saturday, Dec. 28 and 29, so they should all be in the hands of dealers in time, barring unforeseen delays in the mail.

The old button and rain check plan is no longer used and the dealer does not have to register. However, in case any dealer did not receive tickets or has been appointed a dealer since the tickets were distributed or has any other admission question to take up, he will find the management's dealer office at the right hand side of the gate just outside the main entrance on Lexington Avenue.

Salesmen, exhibitors, employees and others are handled on a separate plan.

It is expected that about 3,000 dealers will attend. The attendance each year at the New York show is generally a little below 3,000 and at the Chicago show a little above 3,000. The gross admission at each show is about 300,000.

The management states that the show this year will have 335 exhibits and will exceed all previous shows. The first show was held in Madison Square Garden, Nov. 3, 1900, with about 50 exhibitors. The second show in 1901 had 93 exhibitors; in 1903 there were 154; in 1904, 185; in 1905, 250.

M. A. M. A. Admits 8 Members

WASHINGTON, Dec. 21—The Motor and Accessory Manufacturers' Association have admitted 8 new members. They are: Thomas Dunham Co., Aurora, Ill.; C. A. S. Products Co., Columbus, O.; Union Switch & Signal Co., Swissvale, Pa.; F. A. Ames Co., Owensboro, Ky.; Hill-Smith Metal Goods Co., Boston; Brewer-Tichenor Corp., Cortland, N. Y.; Carlisle Cord Tire Co., New York, and Oldberg Mfg. Co., Detroit.

Hereafter the association meetings will be held in New York.

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Would Load Million More Tax on Owners

But Publicity Given to Bay State Scheme May Take Wind Out of Sails of Schemers

BOSTON, Dec. 29—Governor McCall of Massachusetts and some of the subtle politicians in the Bay State got a surprising jolt yesterday when a plan to mulct the motorists out of another $1,000,000 was given wide publicity. A short time ago a commission appointed to raise revenue went to the Highway Commission and stated that the commonwealth was in need of a few more millions for current expenses in 1918 and that $1,000,000 of the money held by the commission for road maintenance should be turned into the State treasury. This the commission flatly refused to do. It was pointed out that the money was secured by law for road maintenance and it could not be used for anything else.

Then the revenue gatherers said that the motorists would have to contribute another $1,000,000. So the plan was arranged to tax them $5 per vehicle extra and raise the operating fee from $2 to $5. This would mean just about $1,000,000. The motorists were not consulted. There were no hearings. Everything was to be done quietly.

Governor McCall was to be asked to embody the suggestion in his annual message to the legislature. It was to be a patriotic duty for the motorists. To do that would give it a punch, and it would go to a committee who would try to put it across "because the Governor wanted it," etc.

James T. Sullivan, legislative chairman of the Bay State A. A., the New England representative of Motor World, got a quiet tip about it. He did not waste any time, but put the matter up to the Boston Automobile Dealers' Association to call together the heads of all the motor organizations to protest. The suggestion was made that the motorists accept the plan provided that every vehicle on the highways and every person in control of a vehicle be treated the same as the motorists.

The meeting was called Thursday afternoon. The motor representatives then agreed to draft a letter to be sent to Governor McCall protesting against it. Friday morning all the Boston papers came out with stories in which the protest feature stood out in the headlines prominently. That same day the letter was signed and sent to the Governor, and Sunday it will be printed in all the papers, so that it will get two wallops.

As the Governor reads his message to the legislature on Jan. 2 there was not any time to waste. Now the motorists have put the matter up to him. And even if he does recommend it in his message it will lack the punch because of the publicity. Already some of the members of the legislature have been apprised of the plan and they have agreed to fight it if it ever gets into the House or Senate. In other words, the motorists beat the planners to it.

Here is the letter sent to Governor McCall:

Boston, Dec. 28, 1917.

His Excellency, Samuel W. McCall, State House, Boston, Mass.

Your Excellency—We have been informed that you have been requested to urge in your forthcoming message to the Legislature the necessity of raising additional funds during the present war, and that it has been suggested to you that you urge upon the Legislature the passing of a law taxing automobilists of Massachusetts $5 each, and of raising the fee paid by operators to $5.

If we have been correctly informed, we respectfully wish to protest against the passing of any such law, and respectfully urge you not to make such a recommendation in your forthcoming message.

We believe that as a body the owners of motor vehicles are patriotic; that they are lending their aid to the Government in various ways to help along in the war work, and that they will be willing to do so in the future. We do believe, however, to have the motor industry solely singled out as a means of revenue at this time is unfair. If it should be decided that all vehicles such as horse-drawn vehicles, street cars, as well as the motor vehicles should be charged a war fee we shall be glad to assume this added fourth burden.

The motor vehicle is not a luxury. The motor owners contribute now in registration fees some two million dollars to the State, while in personal property taxes they contribute many more millions, and the industry as a whole has added millions to the taxable values of the State of Massachusetts, while giving employment to thousands of men and women who receive good wages.

In addition to the above, the Government has placed a war tax on motor vehicles.

If agreeable to you a committee representing the automobile interests of our Commonwealth will be glad to wait upon you.

Yours respectfully,

George W. McNear, president Massachusetts State Automobile Association.

Arthur F. Teele, president Bay State Automobile Association.

J. H. MacAlman, president Boston Automobile Dealers' Association.

J. S. Hathaway, president Boston Commercial Motor Vehicle Association.

W. A. Thibodeau, counsel Automobile Legal Association.

Francis Hurtubis, Jr., counsel National Automobile Association.

Champion After Winter Business

TOLEDO, OHIO, Dec. 28—The Champion Spark Plug Co. has inaugurated a campaign in behalf of its priming plug.

The purport of this campaign is to create a universal demand for priming plugs by owners who drive their cars throughout the cold months.

To further stimulate the demand the company has contracted for several thousand lines of selling copy in the periodicals to force home the fact that priming plugs are essential to successful winter driving, and have arranged a special window display which will be installed in dealers' windows by the crews of special display Champion cars now touring this country and Canada.

In addition the company has had printed for distribution by dealers an envelope insert which sets out the advantages offered by Champion priming plugs and which will bear the dealer's name.

Direct letters to dealers pointing out the possibilities priming plugs offer in stimulating winter trade and in producing profits already are obtaining the desired results.

Uncle Sam to Enter Car Repair Business

Will Establish Big Maintenance Depots for Taking Care of the Liberty Trucks

WASHINGTON, D. C., Dec. 29—The Liberty trucks, the result of combined effort on the part of America's best engineers and largest manufacturers, are assured of proper maintenance in France. This is the chief item of interest in the past week during which many Government officials took advantage of the holidays to leave the city. Elsewhere in these columns is the story of the new plan for maintaining the trucks in Europe. It is, as have been many other worth-while plans, the result of effort by Christian Girl, chairman of the Military Truck Production Board, which now controls the production, engineering and maintenance of all Quartermaster trucks.

There has been considerable agitation in Washington in the last few months about this matter of maintenance, many people wondering if the work was going to be left to the soldiers of the motor transport unit, who while probably excellent soldiers are not familiar with automobile work. Hence the especial welcome that greets the news insuring proper care for our trucks abroad.

Absence of officials marked absence of much Government activity and the week has passed without any important acts.

Word has come that the first of the B trucks will be ready probably about the 10th of January and will then start the first of the drive-aways of Uncle Sam's own trucks. A repair plant has already been started at Baltimore to be completed by March 1 which will care for necessary repairs of the trucks, and will also house the general equipments needed by the trucks abroad.

A committee of Cleveland business men arrived in Washington to-day representing every industry of that city to engage in a series of conferences with Government officials regarding war work. It is planned to co-ordinate the entire industrial activities of all Cleveland under a committee to remain here, and which will deal for all the various businesses of Cleveland with Government departments as if it represented a single industry, thus simplifying matters for the Government. For example, if the War Department requires certain war work and it takes three separate firms to properly handle the job, all the War Department has to do is to place the entire contract with the representative committee which will distribute it to the different plants in Cleveland.

Very important is the news of the completion of the trip overland by the truck convoy from Detroit. This marks a new era in the history of truck transportation and begins the day when motor trucks will play a most important and vital part in the commercial and military affairs of the nation.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Mode	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tire	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	122	32x4	SS	1295	†1295	1295	....	1920	....	....
6-60	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1095	1095	....	....	1395	....	....
AMERICAN-SIX																	
A	6-3½x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1375	....	....	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Conn	Zenith	Wsths	DP	3	120	32x4	SS	....	1485	....	....	2165	....	....
APPERSON																	
6-18	6-3½x5	29.4	Remy	Rafid	Bijur	DP	3	130	34x4	SS	†2200	....	2200	....	....	....	....
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	35x4½	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	23.4	Remy	Rafid	Remy	DP	3	120	34x4	SS	1295	1295	....	....	....	....	1545
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	†1635	1635	....	2400	....	1995
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142½	34x4½	QD	3750	3750	4000	4550	4950	5250	....
BELL																	
17	4-3½x5	19.6	A.Kent	Zenith	Dyneto	D	3	112	31x4		....	895	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	23.5	E'mann	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	†4000	....
BOUR-DAVIS																	
17	6-3½x4½	25.3	Remy	Stmbg	G & D	DP	3	118	32x4	QD	....	1385	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	7200	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	725	725	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	....	....	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1465
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 {125	35x5 34x4½	SS	2805	....	2805	....	3650	4145	....
CASE																	
T17	4-3½x6	21.0	Conn	Rafid	A-Lite	C	3	120	34x4	SS	†1190	....	1190	....	....	....	....
U	6-3½x5½	29.4	Wsths	Rafid	Wsths	D	3	125	35x4½	SS	†1875	....	1875	....	2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	{117 {122	32x4 34x4	SS	1365	1365	1450	....	1850	2925	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafid	G & D	D	3	123	34x4	SS	1595	....	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	620	620	....	....	1060	....	....
FA-5																	
FA-2	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.45	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1355	1355	....	....	....	....	....
COLE															{2695		
860	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	†1995	....	1995	2495	{2795	....	....
COLUMBIA																	
	6-3½x4½	25.3	A.Kent	Stmbg	W.Lard	DP	3	115	32x4	....	†1495	1395	....	....	1985	....	....
COMET																	
6-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
Ultra 4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	....	....	....	....	....
CROW-ELKHART																	
CE-33-35	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114½	32x3½	SS	†995	{995 {995	....	1195	1275	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	†3100	3100	3100	....	....	....	....
DAVIS																	
H & I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1485	1485	....	1850	....	....
J	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	124	34x4½	....	....	1785	1785	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25.3	Conn	Ball	A-Lite	D		119	33x4	SS	†1395	1395	†1425	....	1875	....	....
DISPATCH	4-3½x5	22.5	Bosch	Rafid	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....
DIXIE FLYER																	
LS35	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†895	895	....	....	1295	..	..
DOBLE	2-5 x4	....	Own	Dobl Stmb	Wagner			125	35x5	....	....	....	2500	....	....	..	

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tire	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MADISON																	
4	.....	....	.....	.....	.....	..	3	124	34x4	....	†1485	1485	1485	1095	....	....	....
	6-3½x5½	23.4	Remy	Rafid	Remy	DD	3	115	34x4	SS							
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	795	....	....	1095	....	....	865
B	6-3½x5½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	975	975	....	1375	1375	....	....
MARION HANDLEY																	
6-60	6-3½x5½	29.4	Wsths	Stmbg	Wsths	DD	3	125	35x4½	SS	†1850	....	1850	....	2500	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3550	3500	3550	....	4950	5250	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K D	Simms	C	3	109	30x3½	C	†745	745	....	1095	1095	1095	855
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3500	3500	3500	....	4600	4650	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QD	3400	Raceabout	3250	....	....	....	....
METZ																	
25	4-3½x4	24	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafid	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	†1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	....	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Heinse	D	3	110	32x3½	SS	995	995	....	....	....	....	....
M-O	6-3½x4½	25.4	Heinse	Stmbg	Heinse	D	3	117	33x4	SS	1195	1195	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	QD	565	†635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	QD	....	1095	....	....	....	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½	....	....	1195	....	....	....	....	....
6-45	6-3½x4½	25.3	Delco	Rafid	Delco	DD	3	125	34x4	SS	†1685	....	1685	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1850	....	1850	2450	2450	....	....
MURRAY																	
1918	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	..	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafid	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-684	6-3½x5	25.4	Delco	Marvel	Delco	P	3	121	34x4	SS	1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	†1995	†1995	1995	2645	2820	....	....
Twelve	12-2½x4½	39.7	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	†2595	†2595	2595	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	1800	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	†990	990	....	{1150 {1490	1190	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1467	....	....	....	....
37	6-2½x4½	18.9	Delco	Johnson	Remy	C	3	112	32x4	SS	†1185	1185	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	37	Conn	Carter	A-Lite	D	3	114	32x3½	....	†965	965	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	†915	930	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	{104 {106	31x4	C	780	795	†840	....	1240	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS		3300	....	3650	....	4350	....
O-36	a-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	136	35x5	SS	†3950	†3950	3950	....	....	5000	....
W-32	6-4 x5½	38.4	.....	.....	....	...	3	142	....	..	....	....	5300	....	6300	6300	....
PACKARD																	
2-35								{136				....	4100	....	....	5650	....
2-35	12-3 x5	43.2	Delco	Own	Bijur	DD	3	{138	35x5	QD	....	3700	3700	5050	....	5250	....

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DODGE BROTHERS																			
	4-3½x4½	34	Delco	Stewart	N.R.	D	3	114	32x3½	SS	995	990	....	1390	1390	....	....
DORRIS																			
I-C-6	6-4 x5	32.4	Bosch	Stmbg	Wsths	D	3	130	36x4½	SS	....	....	2795	2325	2350	4150	....
DORT																			
9	4-3½x5	16.9	Conn	Carter	Wsths	C	3	105	30x3½	QD	‡725	725	....	....	1395	....	845
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS	845	845	†845	....	....	....	....
ELGIN																			
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	32x4	....	†1095	1095	....	1645	....	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	32x4	SS	1165	1120	....	....	....	....	....
70-A	6-3½x4½	25.4	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	†1345	1375	1345	....	1685	....	....
FIAT																			
55	4-5½x6½	42	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly Kngstn	....	D	2	100	30x3½rC		345	360	....	560	695	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	{32x4 33x4½	SS	2000	2050	....	2850	2950	3300	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	112	32x3½	....	‡875	875	....	....	....	....	....
HAL TWELVE																			
	12-2½x5	39.7	....	Stmbg	Wsths	DP	3	135	34x4½	SS	2900	2900	2900	....	3500	4500	....
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	32x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1355	1355	....	....	....	....	....
HARROUN	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	785	....	....	....	....	....
HARVARD	4-3x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	†985	....	....	....	....	....	....
HOWARD																			
	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	750	....	....	....	....	....	....
HAYNES																			
36	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1595	....	....	2260	....	....
37	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1735	....	1735	....	2390	....	....
40	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	121	34x4½	SS	....	2095	....	....	2760	....	....
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2890	....	....
HOLLIER																			
196	6-3 x4½	21.6	Remy	Stewart	Apico	C	3	116	32x3½	SS	....	1085	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Apico	C	3	116	34x4	SS	†1285	1285	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS	1650	†1750	1650	1950	2175	2925	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1250	1250	....	....	....	....	....
	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	119	34x4	SS	1385	1385	....	....	....	....	....
NU	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS	....	....	1540	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	32x4	SS	875	925	†950	....	....	....	....
JACKSON																			
349	6-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	3	125	34x4	....	....	1675	1675	....	2550	....	....
JORDAN																			
Sixty	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2650	3300	....
KING																			
EE	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	‡1585	†1700	1650	....	2300	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1295	1295	1385	1735	1735	....	1735
Double-6	12-2½x5	39.7	Delco	Stmbg	Own	DD	3	...	34x4½	....	1385	....	2250	....	2650	....	2650
KLINE																			
6-38-G	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1395	1395	†1395	....	....	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1645	....	....	1510	....	....
6-R	6-3½x4½	25.4	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	....	1585	....	1785	....	....
LIBERTY																			
6	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1350	1350	....	....	1925	....	....
LOCOMOBILE																			
38 Series II	6-4½x5	43.3	Berling	Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
48 Series II	6-4½x5½	48.6	Berling	Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisma	Rafid	G & D	D	3	133	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	133	35x4½	SS	....	....	1650	....	....	....	....
PAIGE																			
6-39	6-3½x5	28.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1595	1695	....	....	1695	....	....
6-55	6-3½x5½	30.4	Remy	Rafid	Remy	D	3	127	36x4½	SS	....	....	1775	2650	....	3250	....
PAN-AMERICAN																			
	6-3½x5	30.4	G & D	Rafid	G & D	D	3	120	32x4½	SS	....	1500	....	....	....	....	....
PARTIN PALMER																			
Ultra 4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	....	....	....	....	....
PATERSON																			
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	32x4	C	†1295	1295	1295	....	....	....	....
PATHFINDER																			
3-A, B, C	12-2½x5	39.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS	3250	3250	3250	....	....	....	....
PEERLESS																			
56-2	8-3½x5	33.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS	†2340	....	2340	2850	2990	3690	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	28.4	Delco	Titan	Delco	DP	3	120	32x4	SS	†1295	1295	....	....	....	....	....
PREMIER																			
6-B	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	2285	....	2285	....	....	....	....
PRINCESS																			
4-36	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	..	825	825	‡825	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
M	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	†1385	1385	....	....	....	....
R	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	1985	935	....	....	....	....	....
ROAMER																			
R.A.	6-3½x5	28.4	Bosch	Stmbg	Bijur	DP	3	127	34x4	SS	2150	1850	....	....	....	....	....
ROSS																			
	8-3½x5	33.8	....	....	W.Lard	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
B-5-R	4-2½x4	12.1	A.Kent	Schebler	Wagner	DD	3	96	30x3	DC	395	....	....	....	....	....	....
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	935	....	1395	....	....	....
SAYERS	6-3½x4½	25.3	Delco	....	Delco	P	3	....	32x4	....	....	1295	....	....	....	....	....
SCRIPPS-BOOTH																			
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1425	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	1250	....	....	....	....	....	....
SIMPLEX																			
5	6-4½x6½	45.9	Eisma	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
17	6-4 x5½	33.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	3800	†3800	3800	....	....	4750	....
STANDARD																			
8	8-3½x5	33.8	Splitdf	Zenith	Apico	D	3	127	35x4½	....	†1950	....	2000	....	2500	3500	....
STANLEY																			
Steamer	2-4 x5	....	....	....	....	..	.	130	35x4½	SS	‡2200	2200	2300	....	....	....	....
STEARNS																			
SK14	4-3½x5½	23.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1785	1785	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2575	....	2575	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	117½	32x4	....	‡1485	1485	....	....	1985	....	....
STUDEBAKER																			
SF-4-40	4-3½x5	24.2	Remy	Schebler	Wagner	C	3	112	34x4	SS	‡1025	....	1050	....	....	....	1250
ED-6-50	6-3½x5	36.4	Remy	Schebler	Wagner	C	3	122	35x4½	SS	1335	‡1335	1385	1850	1850	2750	1565
STUTZ																			
S	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	120	32x4½	SS	2550	†2650	*2750	....	....	....	....
S.Bearcat	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	120	32x4½	SS	3550	....	....	....	....	....	....
SUN																			
17	6-3½x5	28.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
VELIE																			
28	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1340	1340	†1340	....	1585	....	....
29	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	36x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1890	1940	1940	2790	2790	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	.....	Own	L.N.	P	4	{124½ 127½	35x5 35x5	U	†4600	....	4600	5650	5650	5800	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	121	34x4½	SS	....	....	1525	2175	2225	2925	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	126	34x4½	SS	‡2550	....	2000	....	2700	2900	....
WILLYS																			
89-6	6-3½x5½	20.4	Conn	Titan	A-Lite	C	3	120	32x4½	SS.	†1365	....	1365	....	2045	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2950	2950	3000	3865	4165	4165	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....
WOODS'																			
Dual Power	4-2½x4	13.1	A.Kent	Stmbg	Own	Mag		124	35x4½	QD	....	....	....	2050	....	....	....

*6-passenger. †4-passenger. ‡5-passenger. t-town car.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Titan" Tillottson, "B & Ball" Ball & Ball, "Atmr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "CU" Control Unit, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37½x5½r means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Coming—THE SHOW CALENDAR—*Events*

Is YOUR Show Listed? Send Us the Dates

New York, N. Y.	Salon, Automobile Salon, Inc., Astor Ballroom. John R. Eustis, Mgr.	Jan. 2-9
New York, N. Y.	Eighteenth Annual, Automobile Chamber of Commerce, Grand Central Palace.	Jan. 5-12
Washington, D. C.	Carnival and Open House Week Automobile Trade Assn. of Washington.	Jan. 11-18
Providence, R. I.	R. I. Licensed Auto Dealers' Assn., State Armory. Percival S. Clark, Mgr.	Jan. 11-19
Philadelphia, Pa.	Seventeenth Annual, Philadelphia Auto. Trade Assn., Wanamaker's Garage.	Jan. 12-19
Rochester, N. Y.	Tenth Annual, Exposition Park C. A. Simmons, Mgr.	Jan. 14-19
Milwaukee, Wis.	Milwaukee Automobile Dealers, Inc., Auditorium. (First 7 days, passenger cars; last 3 days, commercial cars). Bart J. Ruddle, Mgr.	Jan. 16-25
New York, N. Y.	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Jan. 19-26
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Jan. 19-26
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wigmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27
Detroit, Mich.	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	Jan. 19-26
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	Jan. 21-26
Wilmington, Del.	Wilmington Automobile Show Assn., Hotel Du Pont. H. N. Partington, Mgr.	Jan. 21-26
Scranton, Pa.	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
Portland, Ore.	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	Jan. 21-26
Oklahoma City, Ok.	Oklahoma City Automobile Dealers' Assn., 701 No. Broadway. Roy H. Haun, Mgr.	Jan. 22-26
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26
Scranton, Pa.	Scranton Motor Trades Assn. Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
Baltimore Md.	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Armory	Jan. 22-26
Allentown, Pa.	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisering, Publicity Mgr.	Jan. 23-28
York, Pa.	York County Auto. Dealers' Assn., Tabernacle. T. F. Pfeiffer, Sec.	Jan. 26-Feb. 3
Bridgeton, N. J.	Bridgeton Automobile Dealers' Assn.	Jan. 26-Feb. 2
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Jan. 26-Feb. 2
Harrisburg, Pa.	Capital City Motor Dealers' Assn J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	January
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland Mgr.	February
Minneapolis, Minn.	Twin City Automobile, Truck, Tractor and Industrial Exposition, Minneapolis Auto. Trade Assn. Walter B. Wilmot, Mgr.	Feb. 2-9
Bronx, N. Y.	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16
Binghamton, N. Y.	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9
Lancaster, Pa.	Automobile Track Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	Feb. 6-9
Portland, Ore.	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	Feb. 6-13
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16
Kansas City, Mo.	Third Annual Tractor, Kansas City Tractor Club.	Feb. 11-16
St. Louis, Mo.	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16
Hartford, Conn.	Show, Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
San Francisco, Cal.	Second Annual, Motor Car Dealers' Assn. of San Francisco, Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Nashville, Tenn.	Nashville Auto Trade Assn., Hippodrome.	Feb. 18-23
Des Moines, Ia.	Ninth Annual Passenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet and Dean Schooler, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
	Commercial Vehicles	Feb. 2-9
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn., Auditorium.	March
Quincy, Ill.	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-23
Muskegon, Mich.	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino. B. B. Steiber, Mgr.	Feb. 25-Mar. 2
Columbus, O.	Auto Exhibiters Co. W. L. Carney, Mgr.	Feb. 27-Mar. 2
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27 Mar. 6
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 23 Mar. 2
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
Clinton, Ia.	Clinton Automobile Dealers' Ass'n Coliseum.	Mar. 6-9
Green Bay, Wis.	Brown County Automobile Trade Assn.	Mar. 8-11
Great Falls, Mont.	Montana Automobile Distributers Assn.	Mar. 16-20
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates	Mar. 19-24
Houlton, Me.	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-23
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Stockton, Cal.	San Joaquin Auto Trade Assn Samuel S. Cohn, Mgr.	Apr. 9-13

Conventions

New York	Nat'l Automobile Dealers' Assn., Meeting of directors and vice-presidents from Eastern States.	Jan. 7-8
New York	Tenth Annual Dinner, Motor Accessory Mnfrs.' Assn., Waldorf-Astoria, 7:30 p.m.	Jan. 9
New York	Convention, National Association of Automobile Accessory Jobbers, Hotel Astor.	Jan. 11-16
Montreal, Can.	Convention of all men Interested in the Automobile Industry in Eastern Canada.	Jan. 22-24
Chicago	Annual Convention, Garage Owners' Assn of Ill., Green Room, Congress Hotel	Jan. 29-31
Richmond, Va.	Richmond Automobile Dealers' Association, First Regimental Armory. Henry B. Marks, Mgr.	Jan. 21-26
Toledo, O.	Toledo Auto Shows Co.	Feb. 11-16
Duluth, Minn.	Duluth Automobile Trade Association. John J. Lane, Mgr.	Feb. 18-23
Great Falls, Mont.	Montana Automobile Distributors' Association, Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20

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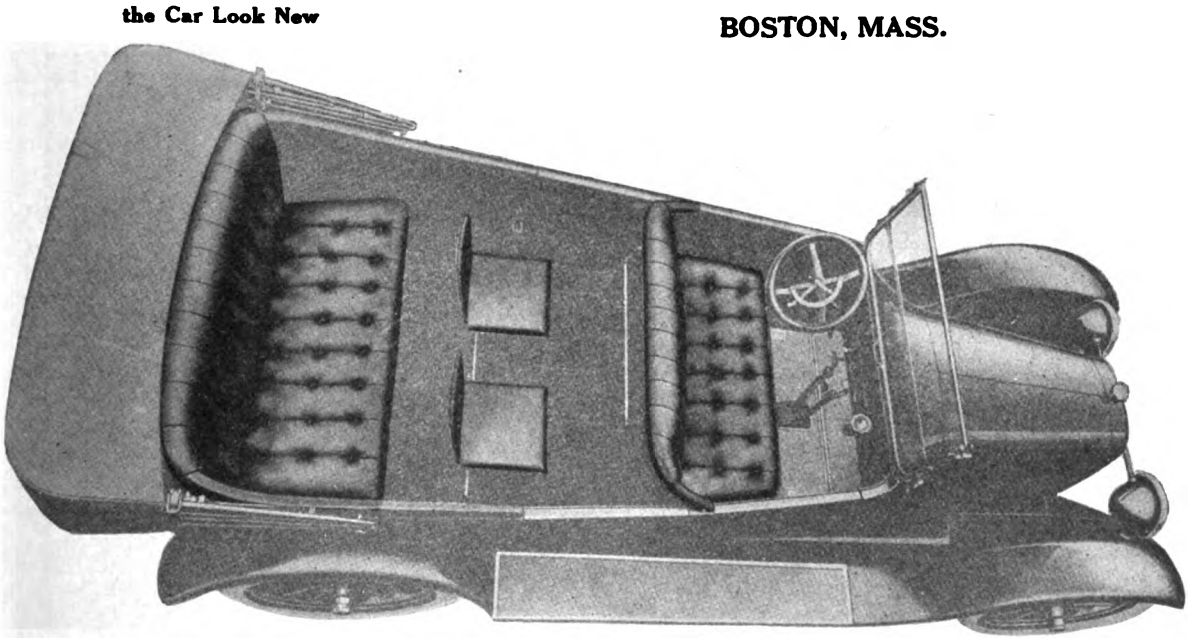
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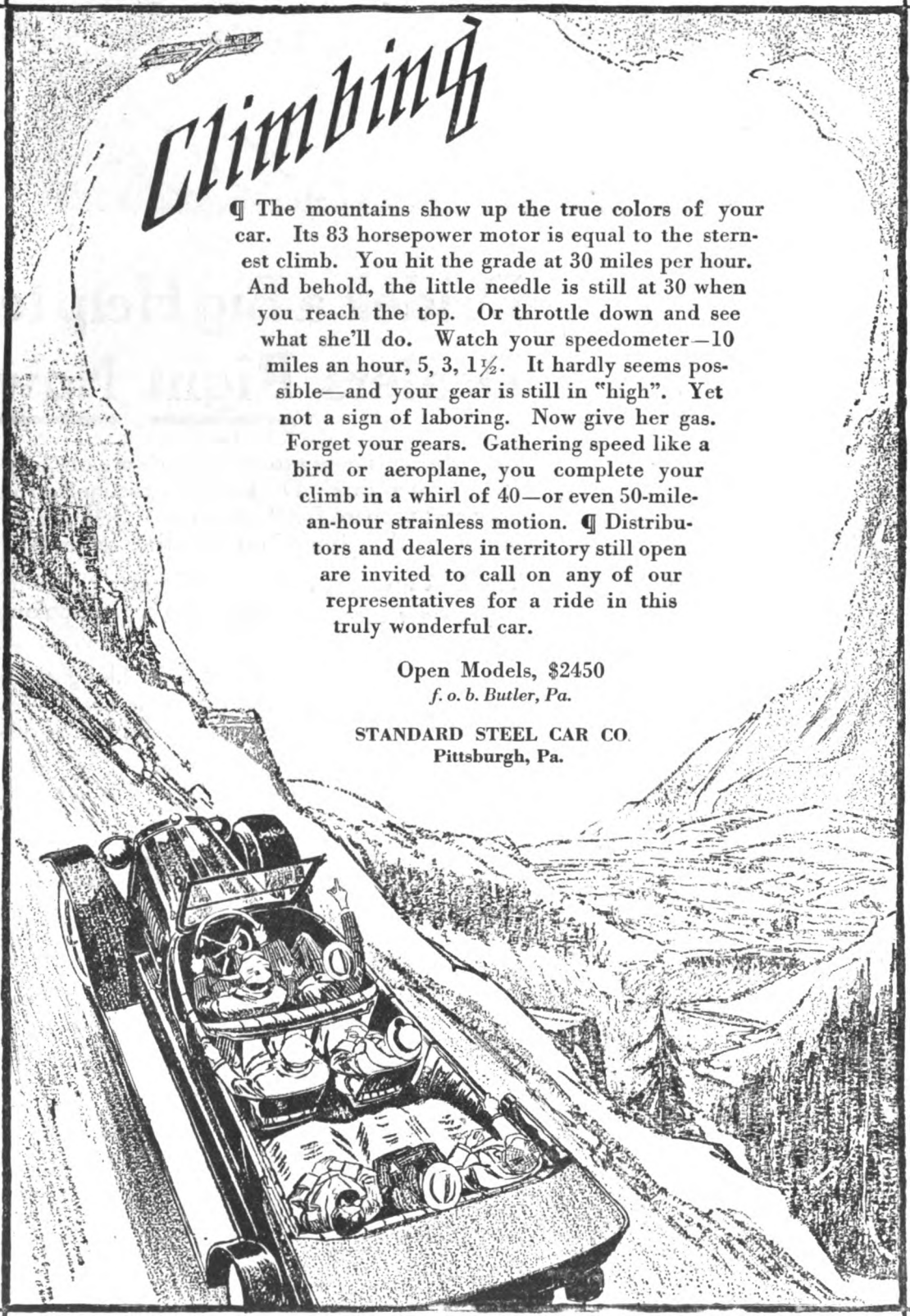
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BOSTON, MASS.

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An uncanny new machine has been devised to build a tire. Not a complicated, nor ponderous, nor costly contrivance: it is small, light, simple and astonishingly efficient.

A workman feeds cotton rope from a huge spool into one of these strange looking machines, and in an incredibly short time the carcass of a tire is formed.

But here is what causes the on-looker to marvel: not at a single place is the rope cut; no place is it hooked, looped or broken. The carcass comes from that machine an uncut strand of rope. Imagine the strength this gives the tire, for the breaking point of just one strand of the cotton rope is 235 pounds. It supports, in other words, the weight of a 200-pound man in a 35-pound chair.

Another extraordinary fact is that the rope is under perfectly uniform tension throughout the tire—something heretofore unheard of in tire building.

After seeing the tire and on learning the uncanny way in which it is built, it is easy to believe that the casing will travel 40 to 80 percent farther than any other pneumatic.

If equipped to handle such a tire, make inquiry quickly lest your neighbor apply first and secure the local dealership.

CARLISLE CORD TIRES

CARLISLE CORD TIRE CO., 256 WEST 54th STREET, NEW YORK CITY. FACTORY, ANDOVER, MASS.

When writing advertisers please mention Motor World—It identifies you

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MADE TO STAND THE WEAR

Peerless Automobile Specialties

MAKE OLD CARS LOOK LIKE NEW

Use These Goods for 1918 and Have Pleased Customers

PEERLESS MOHAIR TOP DRESSING

Waterproofs, dresses and dyes mohair, duck and canvas tops and curtains like new. Dries over night, leaving top soft and pliable.

About one quart to dress a five passenger car top.

PEERLESS LEATHER TOP DRESSING

An oil dressing to renew the finish and keep rubber, leather and pantasote tops and curtains soft and pliable. Dries over night. Not for seats or cushions.

About one quart to dress large five passenger top and curtains.

PEERLESS FORD TOP DRESSING

A dressing made for Ford Top Material, making a rich black gloss finish, adding life and color to old tops. Dries over night, wears indefinitely.

About one pint for a runabout top; one quart for a touring car top.

PEERLESS CUSHION DRESSING

Without danger of washing or rubbing off, it brightens and renews the finish of leather seats and cushions. Dries in thirty minutes.

About one pint for small car and one quart for large car.

PEERLESS LAMP ENAMEL — GLOSS AND DULL

A rich finish for brass, nickel or iron. One coat covers over metal or old enamel. Air drying over night.

PEERLESS CYLINDER ENAMEL — BLACK AND GRAY

A rich gloss enamel that saves cylinders and all metal engine parts from rusting. Not injured by heat, grease or gasoline. Air drying over night.

PEERLESS BLACK JAPAN — EXTRA FINE

A rich gloss air drying enamel for touch-up and all-around use on wood and metal parts of automobiles. One coat covers solid and dries over night.

PEERLESS FENDER JAPAN — JET BLACK

Made especially for coating fenders and hoods with a rich black gloss enamel. Air dries and has a finish like a baked job. Dries in twenty-four to thirty-six hours.

About one quart to coat fenders of a small car.

PEERLESS MIRROROID

A varnish renewer to be applied to varnished surfaces that have lost their lustre and become dull through use. Dries over night with a fine lustre that will wear for months.

One pint to a quart to finish an automobile.

PEERLESS GASKET SHELLAC

A strictly high grade shellac for gaskets, cork carbureter floats, and such parts on an automobile. This is a high grade product cut in pure alcohol. It is not affected by gasoline.

PEERLESS LINING DYE

A powerful black dye that dyes all cloth lining a black uniform color over stains and faded parts alike. Dries in two to three hours. About one quart to dye inside of five passenger car top.

PEERLESS RIM PAINT—ANTI-RUST

A protective coating for automobile rims, to allow tires to be removed with ease and keep them from rusting. Dries in four to five hours.

About one pint for rims of small car.

PEERLESS TIRE PAINT

A white waterproof coating for tires containing nothing injurious to rubber and keeps tires looking bright and new.

One pint will cover five regular casings.

PEERLESS LIQUID WAX

A wax polish for all varnished surfaces of automobiles. In liquid form so that it is easily applied in a light even coat. Polished with ease and ready for use at once. Does not collect dust, and it is not injured by water.

One pint will polish a car.

PEERLESS AUTO BODY POLISH

A varnish food to brighten and renew the appearance of all varnished surfaces on an automobile. Applied and polished ready for use in a very few minutes.

About one pint will polish a car.

PEERLESS BATTERY BOX BLACK—ACID PROOF

An acid-proof coating for wood and metal that comes in contact with acid and fumes from batteries. Keeps acid from destroying wood and metal.

PEERLESS ANTI-FREEZE

Insurance against frozen radiators, made of sufficient strength so that equal parts of anti-freeze and water in the cooling system of an automobile will be sufficient protection at a temperature of about 15 degrees below zero.

PEERLESS CARBON REMOVER

A liquid effectually removing deposits of carbon from cylinders of automobile motors, one ounce used in each cylinder about every five hundred to a thousand miles keeps your motor full of life and eliminates the carbon knock.

PEERLESS COLOR FINISHING VARNISHES

The idea of an owner wanting to paint the body, wheels or chassis of his automobile his favorite color is now realized by the use of these products. The work can be done at home. The goods will cover solid with one coat and dry satisfactorily over night. Very durable products. Made in eight colors: Straw Color, Medium Yellow, Red, Royal Auto Blue, Gray, Brewster Green, Black and White.

The Attractive Package



Lithographed in Silver, Red and Black

SPECIAL NOTICE FOR DEALERS AND GARAGES

For your special convenience we have listed our complete line of PEERLESS AUTOMOBILE SPECIALTIES here so that at all times you will have your catalog before you. It will always be a pleasure to sell goods to your particular customers, that are made by an old reliable manufacturer who takes pride in making fine goods. See our 1918 catalog.

Used throughout the world by owners, garages and chauffeurs.

Also used by over 8,000 automobile painters.

THE FINEST GOODS IN THE FINEST LITHOGRAPHED PACKAGE

For detailed literature write any Jobber of Hardware and Auto Supplies

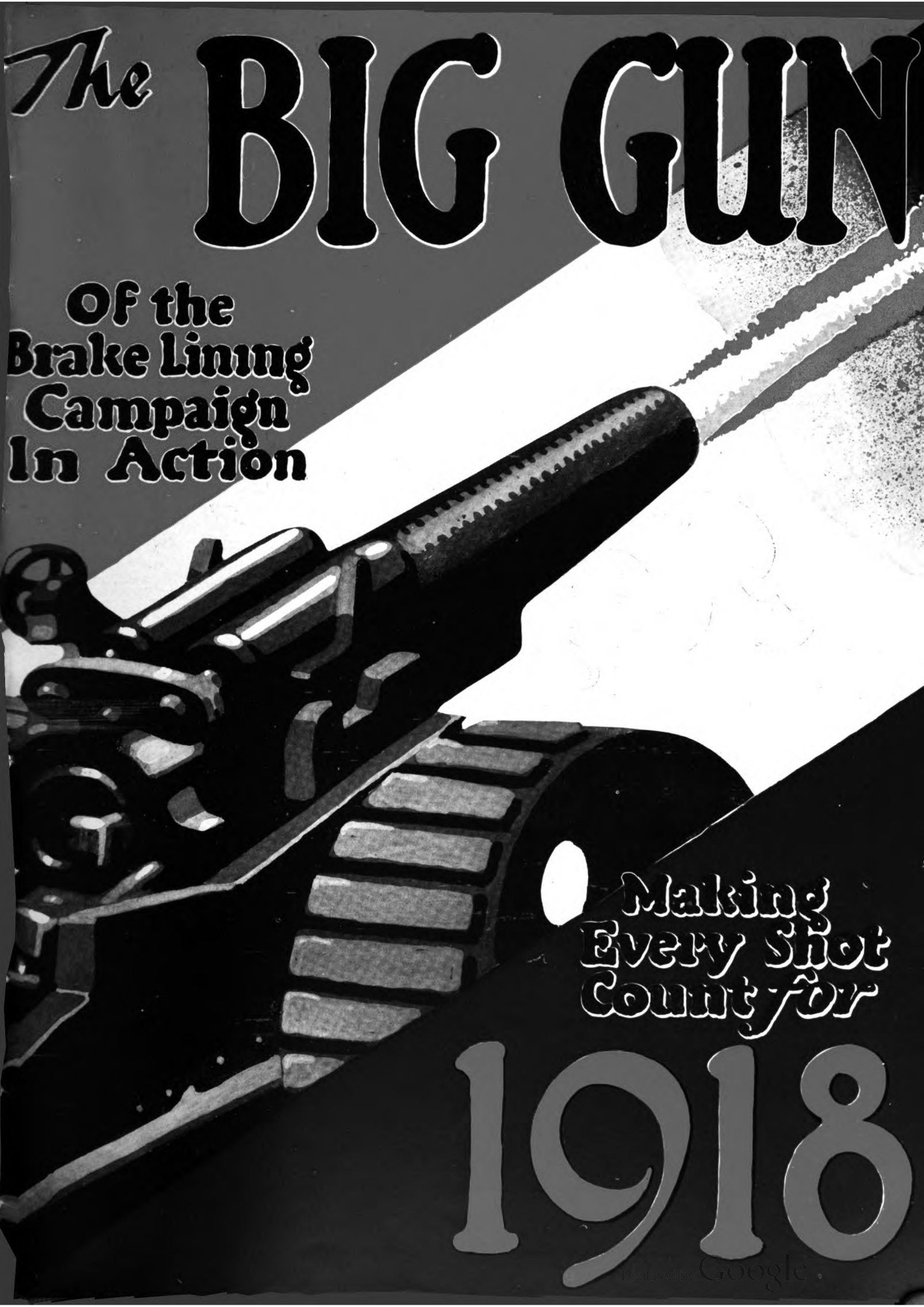
THE COLUMBUS VARNISH CO.

Sole Makers **COLUMBUS, OHIO**

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The BIG GUN

Of the Brake Lining Campaign In Action



Making Every Shot Count for

1918

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Dealers



HIT NUMBER 1

Here is the 1918 Raybestos Campaign

RAYBESTOS merchandising plans for 1918 are more comprehensive than ever before. This lining is exploited with a big powerful punch irresistible in force and effect.

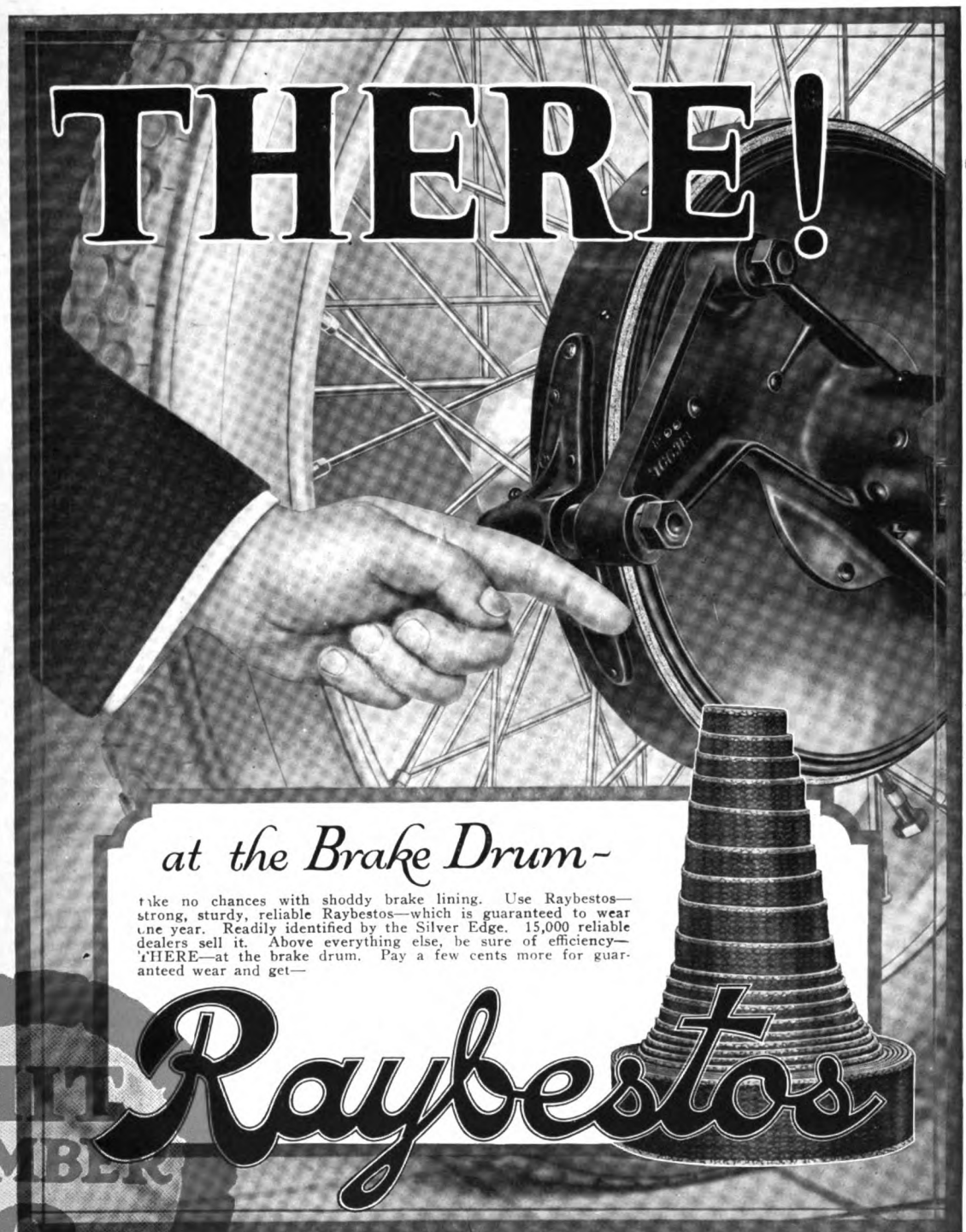
Owners are now buying lining with great care. They look for service. Economy is the watchword. They are not taking chances with shoddy lining. Owners insist upon KNOWN wear, and as Raybestos is the one lining guaranteed to wear 12 months it is eagerly bought. Dealers have a wonderful opportunity to cash in on our national campaign and year's guarantee. Look through these pages. See what we are doing. Then ask yourself if it will pay to handle shortwear fabrics, Will it pay to handle faintly-advertised lining in the face of the splendid Raybestos campaign? Certainly not!

Enterprising dealers know there is nothing to it but Raybestos, which is half-sold before you place it in your store. Strenuous advertising, the guarantee and quality have resulted in an overwhelming demand. Of course—you'll want to join the 15,000 dealers who sell the better brake lining.

We shall use THE SATURDAY EVENING POST and COLLIER'S in the general field. Not one-time, now-and-then copy, but a large unit consistent campaign which appears with constant regularity. Class journals, outdoor bulletins, car cards, newspapers, posters, flash signs, window-dressing, moving picture lantern slides and local ads, are all part of this real merchandising plan.

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THE SATURDAY



1 Page.—This occupies a preferred position in THE SATURDAY EVENING POST.

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THE SATURDAY

HIT NUMBER 3

100 WILLIAM ST. NEW YORK Phone John 250

JAMES J. McKENNA INSURANCE

MOTOR CAR ACCIDENT LIABILITY FIRE, Etc.

November 1st, 1917.

The Raybestos Company,
Bridgeport, Conn.
Gentlemen,

Replying to your request for an opinion as to the principal causes of motor car accidents, my fifteen years' experience in this field has proved that faulty brakes play a most important part, prompt brake action being the means of preventing and brake failure the means of causing fully three-fourths of the Automobile accidents which occur.

Far beyond the property damaged is injury to human beings.

This opinion is based upon my own records and corroborated by several Claim Managers of the largest Insurance Companies. No one should operate a car without first seeing that it is equipped with the very best of brakes and brake lining - high quality lining such as Raybestos.

Very truly yours,

James J. McKenna

JJM.V

If I insure you, you

A better advertisement than we could write

Raybestos

control sturdy wear economy

Brakes that are correctly adjusted, plus reliable lining, afford protection to life and property. Raybestos is preferred by those who know. As efficient after 10,000 miles as when first installed. Get *real* Raybestos for *your* car. Guaranteed to wear *one* year. 15,000 dealers sell it.

LOOK FOR THIS SILVER EDGE ON GENUINE RAYBESTOS



1 Page.—Can you sell non-advertised lining in the face of Raybestos copy like this?

Digitized by Google

THE SATURDAY

How often do you have the brakes lined?



Some motorists reline their brakes more than once a year. Others use Raybestos. The owner who is content with short-wear lining must expect short-wear service. Those who buy Raybestos secure *twelve months'* continuous wear or new lining without charge. Raybestos is a *known quantity*. There is no doubt as to how long it will last. One year's wear definitely guaranteed. Relining brakes consumes time, which means dollars; puts a car out of commission, which means absence of convenience. Relining brakes more than once each year, means needless waste of money that might be spent for tires or gasolene.

Raybestos



Why bother with ordinary lining whose length of life is unknown? Why buy imitations of Raybestos? Get *real* Raybestos which holds, grips and wears like iron.

Genuine Raybestos has the Silver Edge. Look for it. Avoid those linings which masquerade as genuine Raybestos.

HIT NUMBER 4

1 Page.—Here is another splendid page. This kind of advertising sells Raybestos for you.

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THE SATURDAY

Raybestos
BRAKE LINING

HIT NUMBER 5

Consider the satisfaction of using brake lining that instantly responds to the brake pedal. This means convenience, control and long service. These essential factors are built into Raybestos. In addition, you receive definite assurance as to wear. Raybestos is *guaranteed* to wear one year. Why waste time, money or risk life and property with flimsy imitations? Why bother with linings *that are not guaranteed?* Get Raybestos. Obtain efficiency where efficiency means much.



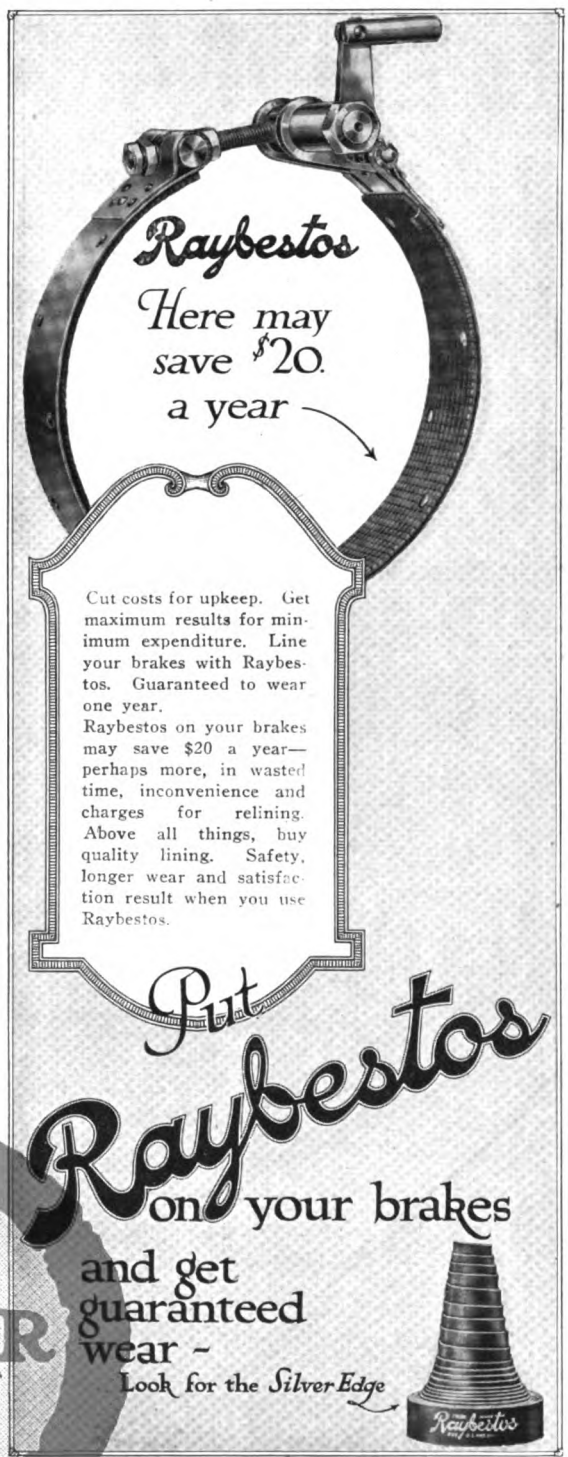
This Silver Edge protects you from spurious imitations of Raybestos. Look for it. 15,000 dealers sell the lining with the Silver Edge.

Insist on this Brake Lining. It is guaranteed to wear 12 MONTHS

1 Page —A clean-cut, convincing argument which features the guarantee.

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2 Half Pages.—Examples of Raybestos half-pages in THE SATURDAY EVENING POST.

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THE SATURDAY

Spring -



Spring will soon be here and with it, the joy of motoring. Snow and slush will surrender to budding trees. Fragrant blossoms echo the call of the open road and a vast army of eager motorists are ready to respond.

your car -



Just now, it is time to think about overhauling your car—little things may need attention here and there. Perhaps the brakes would be better for new lining—better lining than last year.

and the repair man



Tell the repair man you want Raybestos. It is guaranteed to wear one year. No matter what other expenses are involved, for 12 months there will be none for lining. Raybestos is readily identified by the Silver Edge

Raybestos

Money spent for relining brakes more than once a year, is money wasted. Raybestos quality and longer wear, insure safety and ready response.





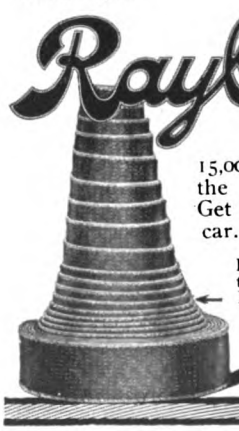
Pay a few cents more for quality

The experienced motorist is careful about his brake lining. He buys quality. He pays a little more for Raybestos, but is rewarded with brake efficiency and long service—for Raybestos is guaranteed to wear one year. Avoid flimsy fabrics at the brake drum. Insist upon—

Raybestos

15,000 dealers sell the better lining. Get it for your car.

Look for the Silver Edge.



HIT NUMBER 7

2 Half-Pages.—And here are additional half-pages which compel attention and sustain interest.

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1 Page—This very powerful advertisement appearing in COLLIER'S features the guarantee. It is rather difficult to sell non-guaranteed lining in opposition to Raybestos.

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4 Quarter-Pages.—A series of excellent quarter-pages which will appear at the height of the buying season.

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Class Publications

While the bulk of Raybestos advertising appears in the general magazines (total circulation of 3,000,000, with probably 5,000,000 readers), we likewise appreciate the value of advertising in class journals. Dealers' publications, directories, etc., are used.

The insert in MOTOR WORLD, issue of January 3rd, is the largest brake lining advertisement ever printed.

The hardware trade is intensively cultivated. Two leading hardware publications are on the Raybestos list.

In other words, every effort is directed toward giving Raybestos nation-wide publicity.

Nothing is left undone which will stimulate the sale of Raybestos.

The dealer who handles **this** lining will find it half sold before it reaches his shelves.

Do you know of any other brake lining which is so thoroughly exploited?



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Auxiliary Advertising

Raybestos literature is very comprehensive in character—a great variety of leaflets, data books, folders, envelope stuffers and of course the catalog descriptive of the complete Raybestos line. You can surely use this material on your counters. It will assist in presenting our entire line to your customers. Dealers are invited to apply for a liberal supply of Raybestos literature.



We illustrate various pieces of literature. The 1918 Raybestos Data Book is now ready for distribution. This book is looked upon as a compendium of data concerning brake sizes. There is scarcely a dealer or garage in the U. S. who does not consult its pages. Our new post card for dealers' customers is also ready. Over 100,000 of these were distributed last year.

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Dealer Helps

In accordance with our energetic sales policy, we have prepared many aids for dealers which can be used to good advantage in your own store. This material focuses attention upon Raybestos and enables you to cash in on our national campaign. Why not let us co-operate with you by forwarding these sales aids? Send your requisition and it will be promptly honored.



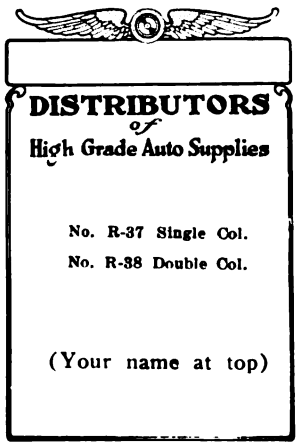
Window card, upper right-hand corner. Outdoor bulletin, wall hanger and example of window dressing. Beneath is a street car card. At left, specimen of lantern slide (your name inserted). At bottom, flash sign for your window.

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Advertising Electros for the Local Papers



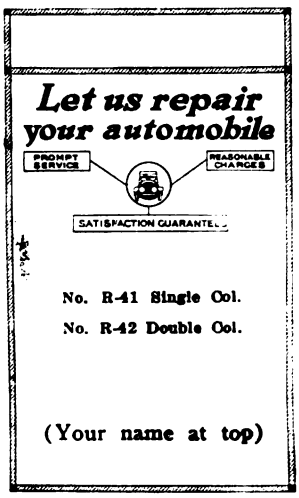
No. R-35 Single Col.
No. R-36 Double Col.



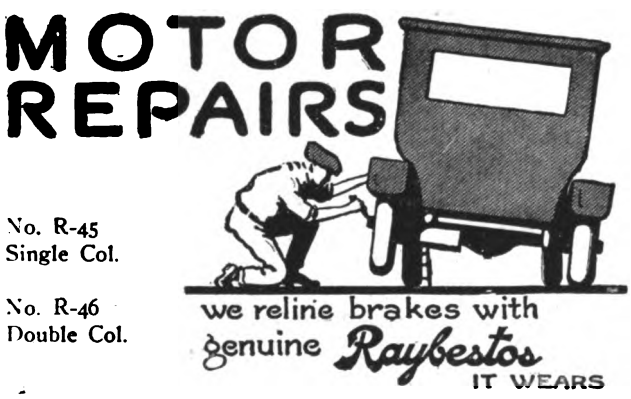
No. R-37 Single Col.
No. R-38 Double Col.



No. R-39 Single Col.
No. R-40 Double Col.



No. R-41 Single Col.
No. R-42 Double Col.



No. R-45
Single Col.

No. R-46
Double Col.



No. R-43 Single Col.
No. R-44 Double Col.

Raybestos

Raybestos name slugs in all sizes. Also illustrations of the famous Raybestos coil for your use.

Let Us Send You These Advertisements

We reproduce on this page, miniature local newspaper ads for our dealers and jobbers. These will stimulate your business. Dealers and garages can obtain electros, without charge, full size, in 1 or 2 column width. Our Advertising Dept. will forward copy or prepare *special* copy for any dealer. We are pleased to lend this sort of co-operation and would like to have your requirements.

Note—When ordering, please give electro number.



No. R-47
Single Col.

No. R-48
Double Col.



No. R-49 Single Col
No. R-50 Double Col

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S. SIMPSON, PRESIDENT. H. C. SIMPSON, VICE PRESIDENT. L. V. SIMPSON, TREASURER.

THE RAYBESTOS COMPANY

SUCCESSOR TO
THE ROYAL EQUIPMENT COMPANY

Raybestos

BRAKE LININGS, CLUTCH FACINGS,
AUTOMOBILE BRAKES AND SPECIALTIES FOR FORD CARS.

QUOTATIONS SUBJECT TO CHANGE WITHOUT NOTICE. ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CONDITIONS BEYOND OUR CONTROL.

ADDRESS ALL COMMUNICATIONS
TO THE COMPANY

Bridgeport, Conn. January 1st, 1917.

To 15,000 Raybestos Dealers

Gentlemen:-

Many of you tell us that our advertising has increased the demand for Raybestos to a remarkable degree. This is undoubtedly true. Our records prove it.

Thus, we are encouraged to inaugurate a still larger campaign for 1918 and in this way stimulate the sale of Raybestos to a point never before reached.

While much success can be attributed to advertising and to the quality of Raybestos itself, we are in no way blind to the fact that without the co-operation, team-work and enthusiasm of you gentlemen of the Trade, all the advertising in the world would be valueless.

Therefore, permit us to offer a word of appreciation for your loyalty in upholding the reputation and popularity of our product.

Very truly yours,

THE RAYBESTOS COMPANY

S. Simpson

President.

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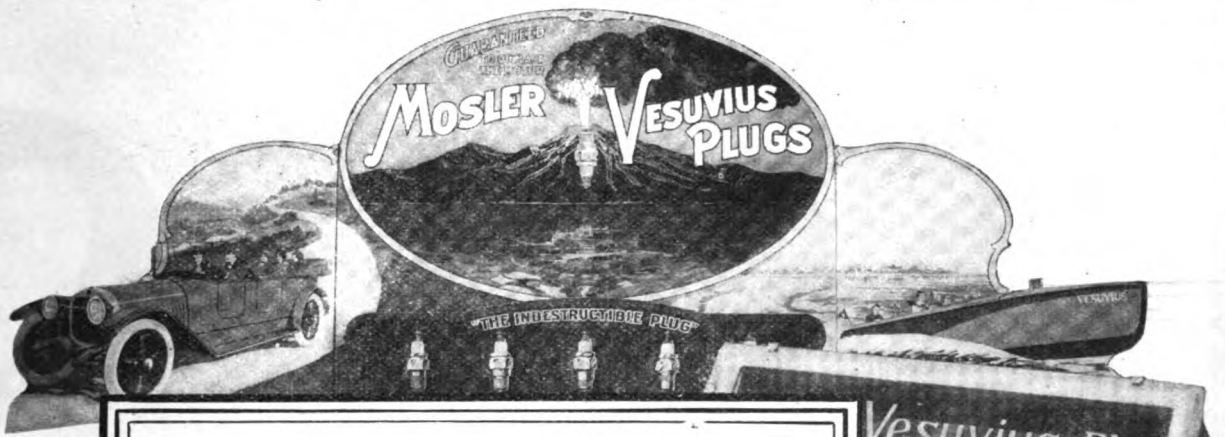
Over 15000 Dealers Sell

Raybestos

The Highest Endorsement Any Product Can Have

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18 Years of Leadership in Spark Plug Manufacture



We Can Help With Your Spark Plug Sales

For 18 years A. R. Mosler & Co. have been making and marketing Spark Plugs.

Our 1918 Campaign on Vesuvius Plugs is the logical result of all these years of successful merchandising.

This Campaign includes a quality plug sold at a standard price, backed by a standardized sales and advertising policy—all designed for your benefit—

First—*The Plug.*—A quality plug hand assembled—good enough to earn the name—*"The Indestructible Plug."*

Second—*The Delivery.*—We are in shape to ship any size order within 24 hours.

Third—*The Profit.*—The Vesuvius is established at one price, $1.00, permitting you a liberal profit.

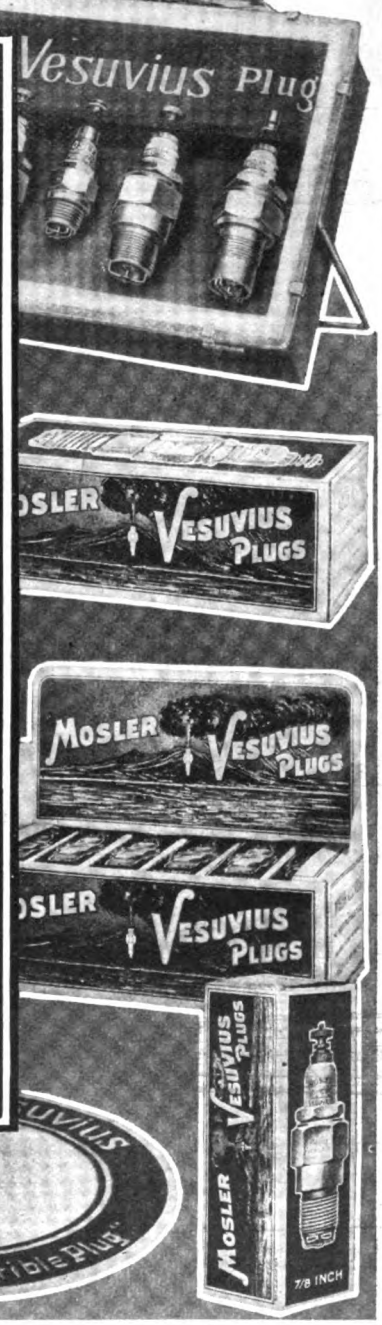
Fourth—*The National Advertising.*—Attractive copy with the proper "quality touch" in magazines of big circulation.

Fifth—*The Sales Helps.*—Attractive display material of all kinds for the window and counter—to tie the national publicity to your store.

Write for details of our co-operative plans and ask for "Mosler on Spark Plugs," a booklet giving correct plug sizes for all motors.

A. R. MOSLER & CO.
NEW YORK, N. Y.







Manufactured under A. R. Mosler's Patent No. 1,218,298, March 6, 1917. Other Patents Pending.

THE INDESTRUCTIBLE PLUG GUARANTEED TO OUTLAST THE MOTOR

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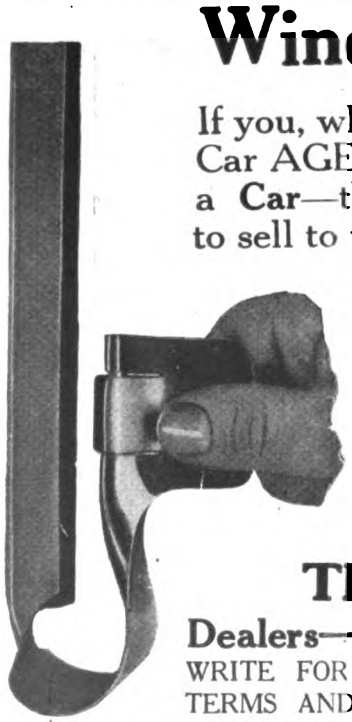
SEE THE EXHIBIT AT THE NEW YORK SHOW (BOOTH D 141)



THE KLEAR-SIGHT KEEPS THE WINDSHIELD CLEAR

TRADE-MARK REG. U.S. PAT. OFFICE

The Most Efficient Windshield Cleaner



If you, who read this ad are a DEALER in Auto Accessories, or a Motor Car AGENT, or an automobile MANUFACTURER or an OWNER of a Car—then you **need** this ***remarkable windshield cleaner***—either to sell to the public or to ***use it yourself***—

Try it on **your** windshield on a **rainy** or **snowy** day—watch it work—see how efficiently and rapidly it takes off ***water or snow,*** with just a **quick, easy** motion across. No **fuss**—no **bother**—nothing to get out of order. Just plain, **everyday** simplicity—that's the **"Klear-Sight,"** and ***you*** need one NOW.

Price at Retail Everywhere, $2.00

THE U-AUTO-C CORPORATION

Dealers—
WRITE FOR DISTRIBUTING TERMS AND TERRITORY

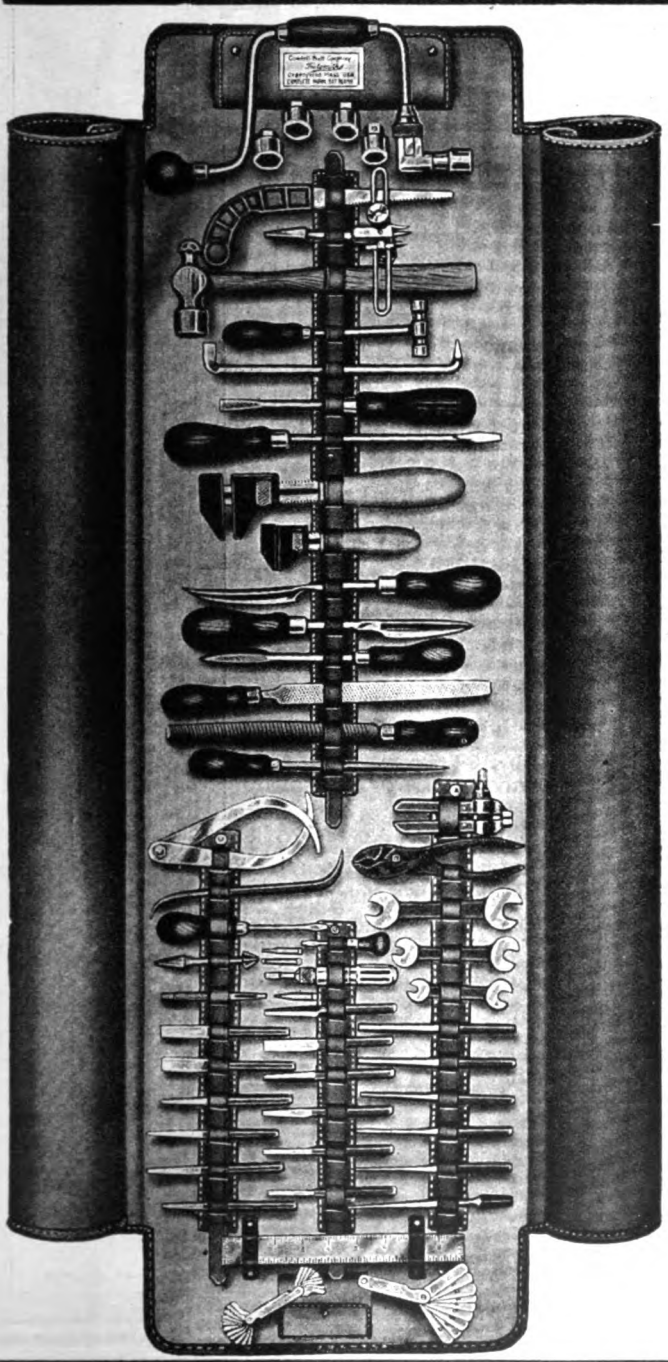
2156 Broadway (at 76th Street), New York

Patentees and Exclusive Makers of the KLEAR-SIGHT Windshield Cleaner

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GOODELL-PRATT

1500 GOOD TOOLS



PREPAREDNESS

If you will augment the usual admittedly inadequate set of tools furnished with the modern motor car, with one of our complete Motor Sets No. 699, you will be prepared for any emergency which may arise, on the road or in the garage.

This set contains 53 high-grade tools in a strong khaki-colored canvas case provided with a carrying handle.

Our Tool Book No. 13 contains detailed descriptions of these and the rest of our line of "1500 Good Tools."

Goodell-Pratt Company

Makers of Mr. Punch

Toolsmiths

Greenfield, Mass.
U. S. A.

Makers of Mr. Punch

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PAIGE

The Most Beautiful Car in America

PREPARE

We have a new year ahead of us. It promises to be a momentous year. We have many new problems to face. By "we" is meant you and we—motor car dealer and car manufacturer. Our destinies are identical. We must stand together and fight together and win together. Let us now, at the outset, face these new problems clamly, sanely and confidently. Let us prepare, not our "defense," but our "offensive" campaign now—and "go through" with it.

Let us tell you this first of all: The Paige-Detroit Motor Car Company is ***ready***—right now. We know precisely what we ***can*** do and ***will*** do. We are sure of our impregnable financial position. We are sure of our production. We are sure of our sales. We are sure of our organization. We are sure of ourselves.

First of all, you must prepare for this year—as we have prepared for it. Hunt out and wipe out your own weak spots. Put your own organization on a war footing. Be sure that in your "brigade" you have fighters, not "slackers." You may have to work harder to close sales. ***But the business is here.***

You are dependent upon the company you represent to see you through when you are once "over the top." There are some "preferred" motor car companies—companies who have the popular cars, the courage, the experience, the vision and the financial resources to win the fight and help you win your fight.

The Paige is one of these "preferred" companies to stand in the front line, strong enough to stand any shock, organized, equipped and confident to win the bitterest battle.

The Paige is going to stand by its dealers. The Paige has the financial strength, the prestige, the public confidence, the organization to "come through" any conceivable situation. The Paige in 1918 will build enough cars for all Paige dealers and will sell every Paige car that is made. It is "preparedness" that wins battles. Are you prepared?

PAIGE-DETROIT MOTOR CAR COMPANY, DETROIT, MICH.

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MICHELIN TIRES make every customer a friend



Michelin dealers are given the glad hand everywhere. There is a reason.

Digitized by Google

This sign, displayed by Michelin Dealers everywhere, stands for both Quality and Moderate Price.



YOU may wonder, Mr. Dealer, how it is that Michelin Tires, though embodying durability unsurpassed at any price, can yet be sold at such moderate figures. The reason is two-fold:

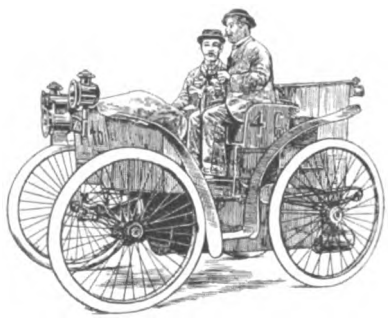
First: **Michelin, as you know, is the oldest tiremaker in the world, having invented the pneumatic automobile tire 22 years ago. Longer experience has resulted in greater skill and more highly developed processes of manufacture.**

Second: **The watchword of the Michelin organization is "Economical Efficiency." No expenditure is spared that would make better tires. But every expense that cannot stand this test is scrupulously avoided.**

The economies that result make it possible to sell Michelins to the motorist at a lower price, and at the same time to allow the dealer an unusually liberal profit.

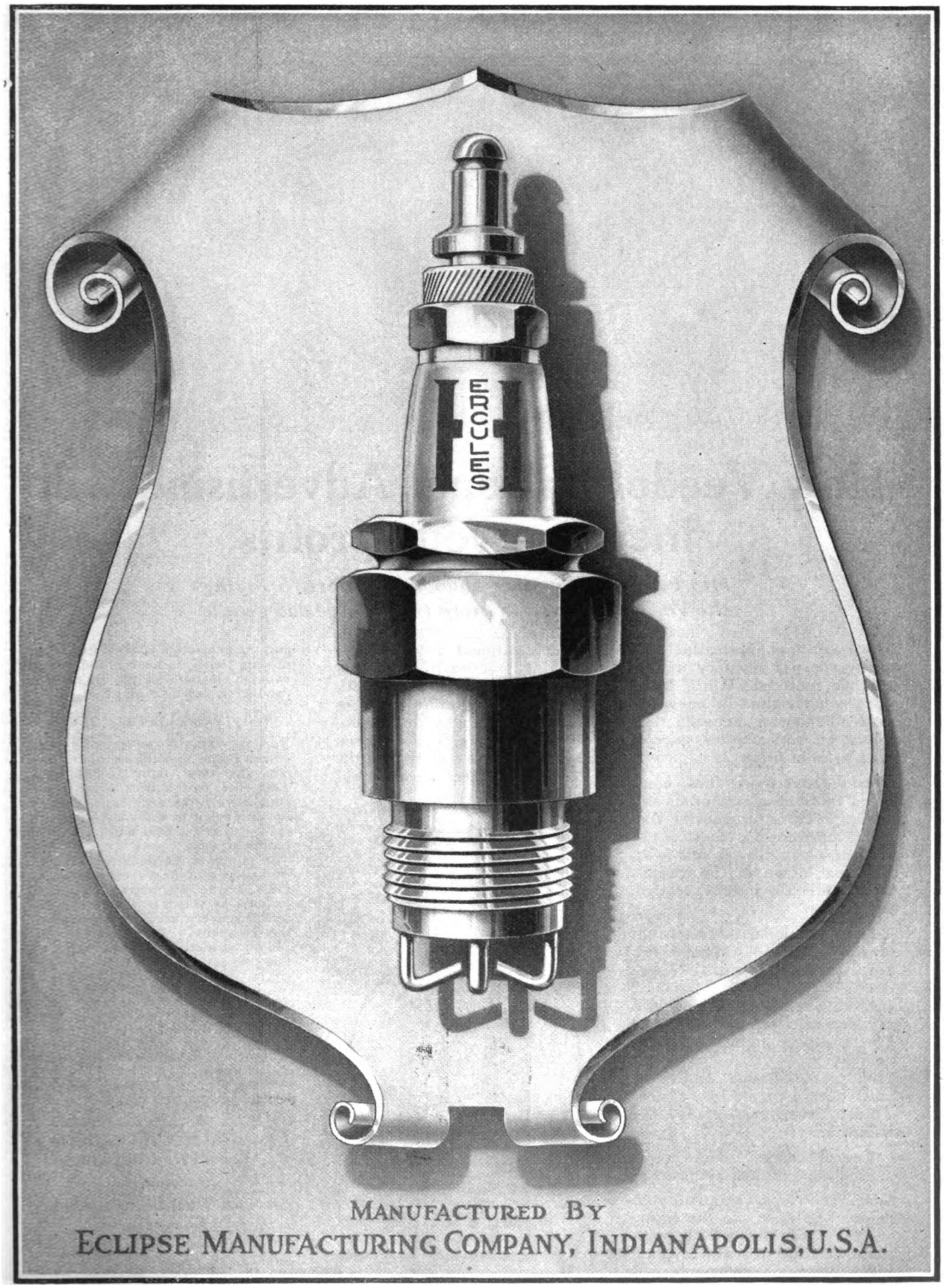
Write for the particulars of the 1918 Michelin proposition

Michelin Tire Company
Milltown, N. J.



The First Use of Pneumatic Tires for Automobiles
Michelin—Paris-Bordeaux—1895

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Digitized by Google



How Veedol National Advertising will increase your profits

1918 campaign greater than ever before, bringing the Veedol message to more than 28,000,000 people

The subject of lubrication has always been a mystery to the average motorist. Until Veedol was advertised he knew no way of choosing between one motor oil and another, except on a basis of price.

Veedol advertising has educated millions of motorists on the importance of choosing the right lubricant for their automobiles—a motor oil that will not break down and form sediment under the intense heat of the engine.

Veedol national advertising reached 28,000,000 people in 1917, and sales of Veedol doubled.

In 1918, Veedol advertising will reach even more people, with greater space, appearing oftener.

Last year 350,000 motorists used Veedol regularly.

To-day there are over 450,000 Veedol users.

Veedol dealers shared in $2,000,000 profits last year

When you stock Veedol all you have to do is to use the signs and other sales helps we supply free of charge, to cash in your share of Veedol profits.

Veedol national advertising—reaching practically every motorist in the United States with real lubricating information—is creating a rapidly increasing demand for Veedol. All you have to do is to supply it to the Veedol customers we are making for you.

Profits to the dealer on Veedol are liberal, sales are sure and Veedol sales-building co-operation is cordial and effective.

Some additional advantages to the dealer stocking Veedol are increased prestige for his business, and the protection that comes from dealing with a big, broad-gauge concern manufacturing its entire product in its own plant.



Ordinary oil after use. *Veedol after use*

Showing sediment in suspension.

VEEDOL

Why Veedol is easy to sell

Veedol national advertising has driven home to millions of motorists the now famous Sediment Test—the two bottles that prove conclusively the striking superiority of Veedol to ordinary oil in its ability to resist heat and to reduce sediment 80%.

The secret of Veedol's remarkable efficiency and heat-resisting qualities is the distinctive Faulkner Process by which it is made—a recent discovery used exclusively by this company. Veedol advertising convinces motorists of the value of this process.

Other fast sellers

Veedol greases will profitably supplement your oil sales. There is a Veedol grease for every purpose and each is of the same high quality as Veedol.

Write for the money-making Veedol proposition today.

Tide Water Oil Company
Veedol Department
Successors to
Platt & Washburn Refining Company
Bowling Green Bldg., New York
BRANCHES: Boston, Philadelphia, Chicago, San Francisco.

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Veedol distributors and carload buyers



Make arrangements today for your stock of Veedol to take care of the Veedol business that is coming your way in 1918. Look for the name of your jobber on this list. If he cannot supply you, write our nearest office.

ALABAMA

Mobile, Van Antwerp	W'sale Drug Corp
Montgomery	Loeb Hardware Co.
Talledega	Wykle Sims Motor Co.

ARIZONA

Flagstaff	Babbitt Brothers
Phoenix	Smith Hughes & Co.
Tucson	Richardson Supply Co.

ARKANSAS

Fort Smith	Speer Hardware Co.
Fort Smith	Ozark Refining Co.
Little Rock	Motor Car Supply Co.
Rogers	Benton County Hardware Co.

CALIFORNIA

Fresno	Evins Rubber & Supply Co.
Los Angeles	McCoy Motor Supply Co.
Modesto	Roundey & Barnett
Oakland	Berg Auto Supply Co.
Pomona	W. B. Gates
Sacramento	Jas. S. Remick Co.
San Diago	Gavin Williams Co.
San Francisco	Lathan Auto Supply Co.
San Francisco	McCoy Motor Supply Co.
San Francisco	Tide Water Oil Co.
San Jose	Normandin Campen Co.
Santa Cruz	Jensen Bros.
Stockton	Jas. S. Remick Co.
Willows	Hochheimer & Co.
Woodland	Standard Garage

CANADA

Calgary	Motor Car Supply Co.
Edmonton	Motor Car Supply Co.
Lethbridge	Motor Car Supply Co.
Montreal	John Millen & Son, Ltd.
Regina	Great West Saddlery Co.
Saskatoon	Great West Saddlery Co.
Toronto	John Millen & Son, Ltd.
Vancouver	Millen's British Columbia, Ltd.
Winnipeg	Great West Saddlery Co.

COLORADO

Alamosa	Bethman Motor Co.
Denver	The Auto Equipment Co., Inc.
Durango	Jarvis Garage
Montrose	Hartman Bros.
Morn	W. L. Cline

CONNECTICUT

Hartford	Sisson Drug Co.
Ridgefield	George T. Tates

CUBA

Havana	Mora & Zayas Commercial Co.

DELAWARE

Middletown	Shallcross Garage
Wilmington	The Tire Shop Co.

DISTRICT OF COLUMBIA

Washington	Sanner & Berry

FLORIDA

Daytona	Benner & Williams
Jacksonville	G. Norman Baughman Co. (Branch)
Jacksonville	Imperial Garage & Sup. Co.
Miami	J. T. Weather Garage
Tampa	G. Norman Baughman Co.

FOREIGN

Buenos Aires, Argentine	Am. Trading Co.
Christchurch, New Zealand	W. H. Simm Sons, Ltd.
Lisbon, Portugal	Orey Antunes & Cia, Ltd.
Rio de Janeiro, Brazil	British Mfgrs. Assoc., Ltd.
St. Johns, Newfoundland	A. E. Hickman Co., Inc.
Bologna, Italy	Mediterranean Trad. Co.
Florence, Italy	Mediterranean Trad. Co.
Genoa, Italy	Mediterranean Trad. Co.
Milan, Italy	Mediterranean Trad. Co.
Naples, Italy	Mediterranean Trad. Co.
Rome, Italy	Mediterranean Trad. Co.
Turin, Italy	Mediterranean Trad. Co.

GEORGIA

Atlanta	Ozburn-Abston & Co
Augusta	Davis Tire & Rubber Co
Columbus	W. E. Cody Co
Chickamauga	Dalton Bros.
Savannah	Ozburn-Abston & Co
Thomasville	Brandon Grocery Co.

HAWAII

Honolulu	Smoot & Steinhauser, Ltd.

IDAHO

Pocatello	Salt Lake Hardware Co.
Twin Falls	Twin Falls Auto Co.

ILLINOIS

Aurora	A. C. Berthold & Co.
Aurora	Coates Garage
Bloomington	Frank H. Cole Motor Co.
Chicago	Auto Supply Co.
Chicago	Beckley Ralston Co.
Chicago	Chicago Auto Supply House
Chicago	Louis Geyler Co.
Chicago	United States Rubber Co.
Chicago	Boulevard Tire & Supply Co.
Chicago	Tide Water Oil Co.
Danville	E. B. Collins
Decatur	Bittel-Leftwich Co.
Decatur	Motor Car Supply House
DeKalb	DeKalb County Auto Supply Co.
Elgin	S. B. Moore
Hamilton	Hamilton Independent Oil Co.
Hillsboro	Geo. W. Brown, Jr.
Kankakee	H. F. Stevens
Manteno	O. C. Schreffler & Son
Mattoon	Mattoon Motor Car Co.
Mendota	Black & Miller
Peoria	Graham Seltzer Co.
Pontiac	Farrar Quinn Motor Co.
Robinson	Robinson Motor Car Co.
Springfield	Bittel Leftwich Co.
Springfield	Hudson Sales Co.
Waukegan	Waukegan Oil Co.

INDIANA

Elkhart	Indiana Auto Sales Co.
Evansville	Orr Iron Co.
Evansville	Fellwock Auto Co.
Fort Wayne	National Mill Supply Co.
Fort Wayne	Wayne Motor Service Co.
Indianapolis	The Gibson Co.
Jeffersonville	Geo. Pfaus Sons Co.
Laporte	LaPorte Independent Oil Co.
Seymour	Bevins-Everbach Auto Co.
South Bend	Frazier & Frazier
Terre Haute	Terre Haute Auto Co.
Vincennes	A. L. Maxwell Co.
Warsaw	Burke C. Cook

IOWA

Boone	Erickson Auto Supply Co.
Cedar Rapids	Baker Mfg. Co.
Centerville	Duree Adams Motor Car Co.
Davenport	Sieg Iron Co.
Des Moines	United States Rubber Co.
Grinnell	White Star Filling Station
Lamoni	Interstate Garage
Newton	Baker Auto Co.
Oskaloosa	R. F. & W. B. Fitch Co.
Prairie City	Prairie City Auto Co.
Sioux City	William Warnock Co.
Waterloo	Harry Padden Auto Co.

KANSAS

Augusta	J. W. Handy Motor Co.
Galena	Hulse Auto Co.
Hutchinson	Hutchinson Motor Car Co.
Pittsburgh	A. Hood & Sons Implement Co.
Salina	Lee Hardware Co.
Topeka	W. A. L. Thompson Hardware Co.
Wichita	Auto Supply & Tire Co.

KENTUCKY

Louisville	Roy E. Warner Co.
Paducah	Home Electric & Supply Co.

LOUISIANA

Minden	W. B. Togle
New Orleans	Shuler Rubber & Supply Co.
Shreveport	The Lee Hardware Co., Ltd.

MAINE

Bangor	Rice & Miller
Portland	Edwards & Walker Co.
Portland	Tupper & Brown
Rockland	Rockland Oil Co.

MARYLAND

Baltimore	Carl Spoerers Sons Co.
Cambridge	Phillips Hardware Co.
Easton	Clark Auto Co.

MASSACHUSETTS

Boston	J. H. & G. L. Atwood, Inc.
Boston	Jos. E. Greene Co.
Boston	Hub Cycle Co.
Boston	Motor Car Equipment Co.
Boston	United States Rubber Co.
Boston	Tide Water Oil Co.
Norwood	John Schroeder
Springfield	United States Rubber Co.
Taunton	Pierce Hardware Co.
Worcester	Eastern Supply Co.
Worcester	Alsten & Goulding Co.

MICHIGAN

Detroit	General Auto Supply Co.
Detroit	E. A. Bowman Co.
Detroit	Tide Water Oil Co.
Detroit	Roehm & Davison Co.
Grand Rapids	Michigan Tire & Access. Co.
Kalamazoo	Edwards & Chamberlin Hd. Co.

MINNESOTA

Albert Lea	W. K. Supply Co.
Albert Lea	Motor Inn Co.
Duluth	Duluth Auto Supply Co.
Mankato	G. A. Lewis
Minneapolis	Tide Water Oil Co.
Minneapolis	Reinhard Brothers
Minneapolis	Western Motor Supply Co.
Rochester	Case Auto Co.
St. Paul	G. Sommers & Co.
Waseca	Motor Inn Auto Co.
Winona	Minnesota Harness Factory

MISSISSIPPI

Clarksdale	G. M. Montgomery
Jackson	Hines Auto Supply Co.
Meridian	E. S. Curtice
Natchez	Baker McDowell Hardware Co.

MISSOURI

Cape Girardeau	Fred A. Groves Motor Co.
Joplin	Joplin Supply Co.
Kansas City	Bittel-Leftwich Co.
Kansas City	Equipment Co.
Kansas City	Bonniwell Calvin Iron Co.
Kansas City	White Star Gas & Oil Co.
Kahoka	Hamilton Independent Oil Co.
Moberly	Moberly Oil Co.
St. Joseph	Wyeth Hardware & Mfg. Co.
St. Louis	Bittel-Leftwich Tire Service Co.
St. Louis	Campbell Iron Co.
St. Louis	Webber Implement & Auto Co.
St. Louis	Geller Ward & Hasner Hdw. Co.
St. Louis	Fred Campbell Auto Supply Co.
St. Louis	Tide Water Oil Co.
Springfield	Southwest Auto & Supply Co.
Windsor	Windsor Oil Co.

MONTANA

Anaconda	Anaconda Overland Co.
Billings	Northwestern Auto Supply Co.
Billings	Western Motor Supply Co.
Bozeman	L. K. Pence Co.
Butte	Automobile Supply Co.
Fairview	Fairview Auto Co.
Fort Benton	H. Le Barre
Glendive	Hughes Oil Co.
Great Falls	Northwestern Auto Sup. Co.
Helena	A. M. Holter Hardware Co.
Malta	Solberg & Nybo
Plentywood	Joe Kavon
Scobey	Battleson Bros.
Sydney	Bendon Auto Supply Co.

NEBRASKA

Lincoln	The Korsmeyer Co.
Lincoln	Nebraska Buick Auto Co.
Omaha	Paxton & Gallagher Co.
Omaha	United States Rubber Co.

NEVADA

Ely	Lincoln Highway Garage
Reno	Nevada Auto Supply Co.

NEW HAMPSHIRE

Concord	Thompson & Hoague, Inc.
Manchester	J. B. Varick Co.

NEW JERSEY

Newark	Wm. Crelin Co.
Newark	H. H. H. Tire Co.
Newark	Motor Car Equipment Co.
Trenton	Crescent Auto Sales Co.

NEW YORK

Geneseo	Geneseo Auto Co.
Albany	Tide Water Oil Co.
Amsterdam	Lair & Dunkel
Binghamton	Binghamton Motor Car Co., Inc.
Binghamton	Binghamton Oil Refining Co.
Brooklyn	Julius Bindrim
Buffalo	Daniel Mahoney Sons Co.
Buffalo	Beals & Co.
Buffalo	Pease Oil Co.
Buffalo	United States Rubber Co.
Corning	Mahaffey Bros.
Glens Falls	Wm. F. Ryerson
Gloversville	Charles E. Lair
Ithaca	J. B. Lang Engine & Garage Co.
Jamestown	Hogle Oil Co.
Kingston	O. M. Kennedy
Liberty	Nichols Garage
New York City	Lowe Motor Supply Co.
New York City	A. J. Picard & Co.
New York City	Geo. D. Brown, Inc
New York City	United States Rubber Co.
New York City	Fellsen & Co.
New York City	Regal Rubber & Tire Co.
Plattsburg	M. P. Myers & Co.
Poughkeepsie	C. M. Clay & Sons
Rochester	Chapin Owen Co., Inc.
Rochester	United States Rubber Co.
South Salem	South Salem Garage
Syracuse	Crown Oil Co.
Syracuse	Tide Water Oil Co.
Syracuse	W. D. Andrews & Co.
Syracuse	Lee Auto Supply Co.
Syracuse	United States Rubber Co.
Syracuse	H. C. Roberts Electrical Sup. Co.
Troy	North End Auto Supply Co.
Utica	W. J. Helfert
Watertown	Northern Oil & Fuel Corp.
Wellsville	Carroll A. Sturtevant
White Plains	Ford Motorcycle & Auto Supply Co.

NORTH CAROLINA

Charlotte	Overland Carolinas Co.
Raleigh	Overland Carolinas Co.
Washington	W. C. Mallison & Son
Winston Salem	The Motor Co.

NORTH DAKOTA

Bismarck	Motor Car Supply Co.
Dawson	Northern Oil Co.
E. Fairview	C. W. Bowles
Fargo	J. D. Grant Co.
Grand Forks	Grand Forks Overland Co.
Minot	Minot Auto Co.

OHIO

Akron	Factory Oil Co.
Canton	Young Auto Supply Co.
Canton	The Canton Oil & Grease Co.
Cincinnati	Welbon Motor Car Co.
Cleveland	Lubric Oil Co.
Columbus	Justus & Parker
Kenton	Carbonless Oil Co.
Sandusky	Lubric Oil Co.
Springfield	The Motor Mart Co.
Toledo	Vulcan Oil Co.
Youngstown	Stambaugh Thompson Co.

OKLAHOMA

Clinton	Lindner Oil Co.
Cordell	New State Garage
Enid	Vessels Gentry Oil Co.
Fairview	Chas. A. Wright
McAlester	Russell Hardware Co.
Muskogee	McBee Oil Co.
Oklahoma City	Burwell Smith Supply Co.
Oklahoma City	Doty Oil Supply Co.
Tulsa	Lindner Oil Co.
Tulsa	Motor Supply Co.

OREGON

Crane	Burns Garage
Portland	Ballou & Wright

PENNSYLVANIA

Allentown	Amazon Tire & Supply Co.
Harrisburg	Myers Accessory House
Jeannette	Jeannette Auto & Machine Co.
Johnstown	Swank Hardware Co.
Lancaster	D. W. Ranck
Newcastle	Smith Foster Motor Car Co.
Norristown	Fenimore Oil Co.
Philadelphia	Tide Water Oil Co.
Pittsburgh	Tide Water Oil Co.
Pittsburgh	United States Rubber Co.
Pittsburgh	Jos. Woodwell Co.
Scranton	Lansing Hardware Co.
Sharon	Smith Foster Motor Car Co.
Wilkes-Barre	White Hardware Co.
York	J. W. Richley Automobile Co.

RHODE ISLAND

Arctic	P. V. Auto Co.
Providence	Combination Ladder Co.
Providence	Waite Auto Supply Co.

SOUTH CAROLINA

Charleston	Bailey Lebby Co.
Georgetown	Southern Mercantile Co.

SOUTH DAKOTA

Sioux Falls	L. & L. Motor Supply Co.

TENNESSEE

Chattanooga	Southern Auto Supply Co.
Memphis	Ozburn Abston & Co.
Nashville	Hirsig Auto Supply Co.

TEXAS

Abilene	J. M. Radford Grocery Co.
Amarillo	Quick Service Tire Co.
Amarillo	Woolfin Bros.
Austin	Walter Tips Co.
Dallas	Panther Auto Supply Co.
El Paso	Western Motor Supply Co.
Fort Worth	James McCord Co.
Fort Worth	Panther Auto Supply Co.
Hereford	Miller & Fallwell
Houston	Overland Houston Co.
Lubbock	Lubbock Buick Garage
Sherman	Roberts Electric Co.
San Antonio	Woodward Carriage Co.
Waco	Herrick Hardware Co.
Wichita Falls	Hornsby Heavy Hdw. Co.

UTAH

Salt Lake City	Salt Lake Hardware Co.

VERMONT

Burlington	Vermont Hardware Co.

VIRGINIA

Danville	Owens Merritt Co.
Richmond	Talman Auto Supply Co.
Roanoke	Nelson Hardware Co.

WASHINGTON

Bellingham	Bellingham Auto Supply Co.
Everett	Haley & Sheraton, Inc.
North Yakima	Yakima Auto Supply Co.
Seattle	Ballou & Wright
Spokane	Seven-Seven Co.
Walla Walla	Dahlen Auto Co.

WEST VIRGINIA

Charleston	Middleburg Garage
Clarksburg	Williams Hardware Co.
Huntington	Carter & Turner
Parkersburg	H. P. Dils Sons Co.
Wheeling	Earle Rodgers Co.

WISCONSIN

Burlington	Hansen Oil Co.
Fond du Lac	Yapp Oil Co.
Green Bay	Morley Murphy Hardware Co.
Green Bay	Barkhausen Oil Co.
Kenosha	D. B. Pedley & Son
Manitowoc	Plumb & Nelson
Milwaukee	Julius Andrae & Sons Co.
Milwaukee	Phillip Gross Hardware Co.
Milwaukee	United States Rubber Co.
Racine	Robert Sieber Oil Co.
Watertown	J. B. Murphy Co.

WYOMING

Cheyenne	Auto Goods Co.
Laramie	Auto Goods Co.
Rawlins	Auto Goods Co.
Rock Springs	Auto Goods Co.



VEEDOL



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The Problem is Solved!

USE KEROSENE— **(COAL OIL)** The Detroit Kerosene Equipment for Fords actually accomplishes what others have claimed and hoped for their so-called Kerosene Carburetors. It uses cheap kerosene as an efficient and satisfactory fuel, thereby **reducing mileage cost by 60 per cent.**

We Know what we have—you can prove it to your own satisfaction on

30 Days' Trial or Money Back

The Kerosene Equipment ready to be attached to Ford engine consists of:

1. The Detroit Kerosene Carburetor (patent pending), with only one float chamber (for kerosene); the three way valve admits the gasoline for starting.

   Is non-adjustable — throttles down smoothly — idles without loading — increases mileage—is a positive fuel and money-saver—makes no condensation in cylinders and reduces speed changing.

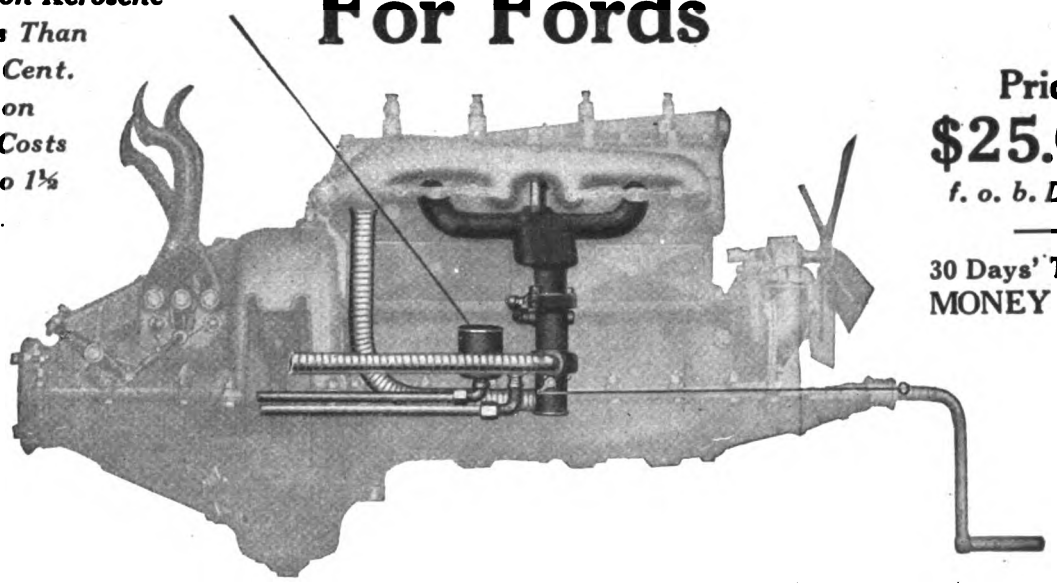
2. Intake Manifold with drying chamber.
3. Flexible tubings.
4. Gasoline tank, tube and couplings.

INSTALLATION

1. Drill a 7/8-inch hole into center of exhaust manifold.
2. Remove intake manifold.
3. Clamp on new manifold.

Detroit *Kerosene* Equipment For Fords

One Mile on Kerosene Costs Less Than One-Half Cent. One mile on Gasoline Costs from 1¼ to 1½ Cents.



Detroit Kerosene Equipment attached to Ford Engine showing the entire installation except the Gasoline tank located under seat.

Price $25.00 *f. o. b. Detroit*

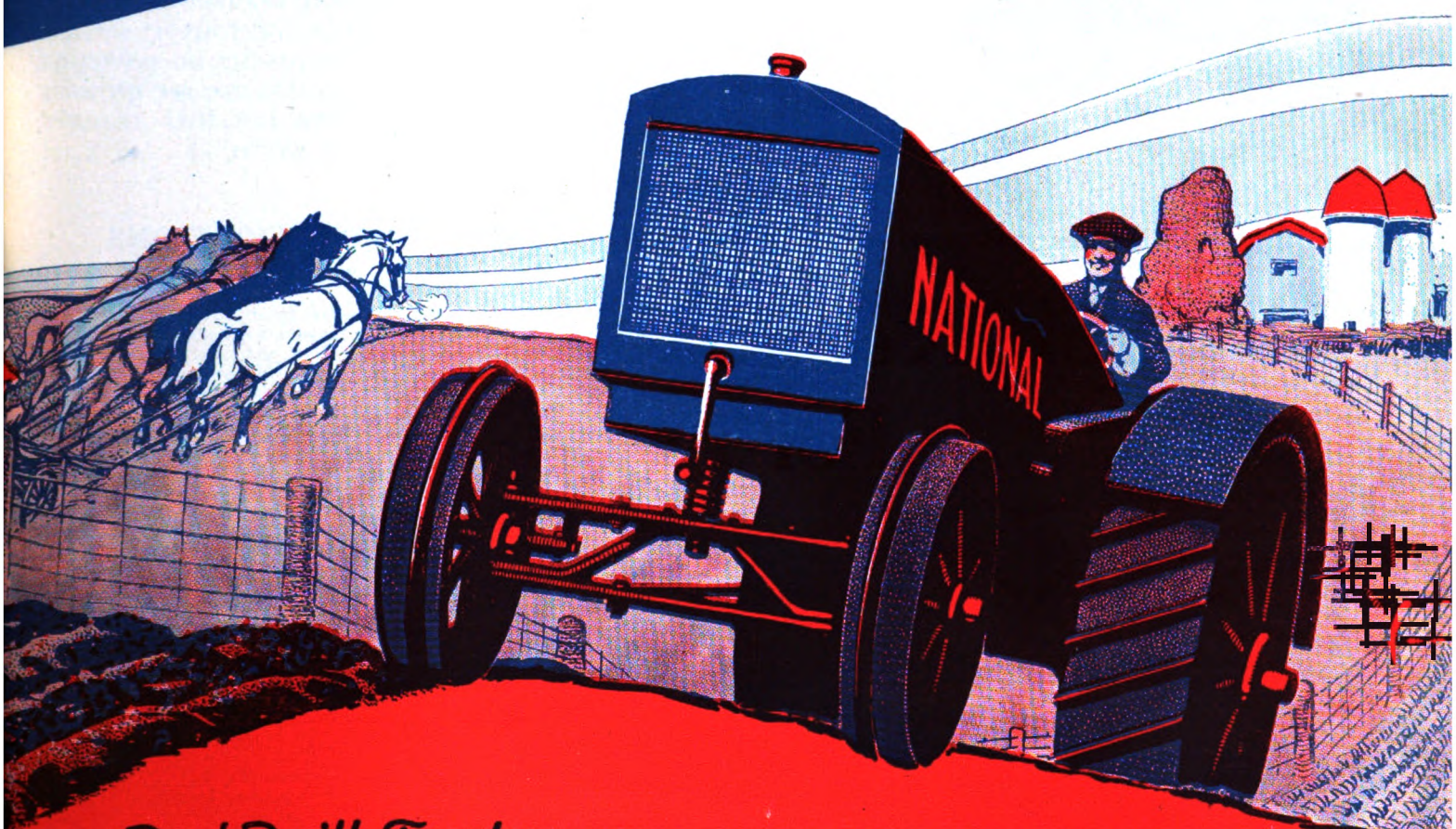
30 Days' **Trial or** MONEY **BACK**

THESE ARE DAYS OF STRICT ECONOMY. ACT PROMPTLY!

Detroit Kerosene Carburetor Co., Dept. 21, Kresge Bldg, Detroit

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GET ON THE NATIONAL TRACTOR SIDE of THE FENCE!



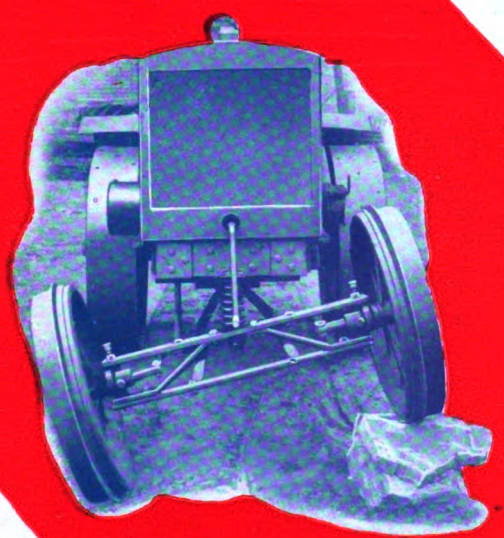
Best Built Tractor In The World

NATIONAL TRACTOR

New York Show Headquarters—
January 5-12—Biltmore Hotel

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PERFECT BALANCE

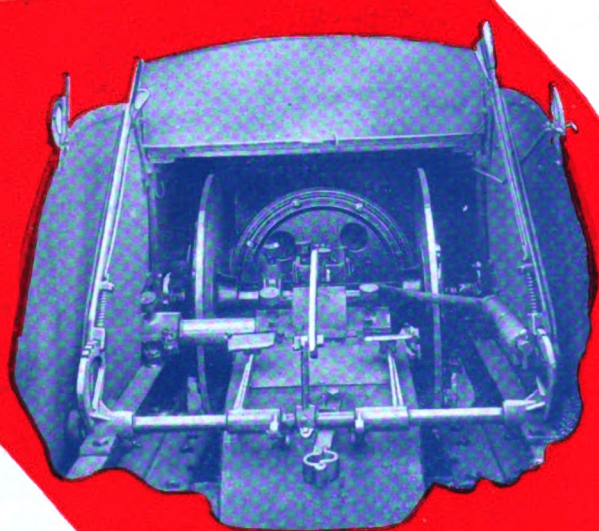


Perfect Balance. Short Turning

Today the National Tractor stands without a peer. Seven years of practical field performance have proven that a standardized design with exclusive National features is the cheapest machine for the farmer to own and the most satisfactory for the dealer to sell.

Operates On Kerosene Successfully

National Tractors are equipped with the famous four cylinder Waukesha motor——built especially for tractor service. Will deliver its maximum power on *two gallons of kerosene per operating hour*. Even less fuel required for belt work.



SPECIFICATIONS
Model "E"—Two Plow

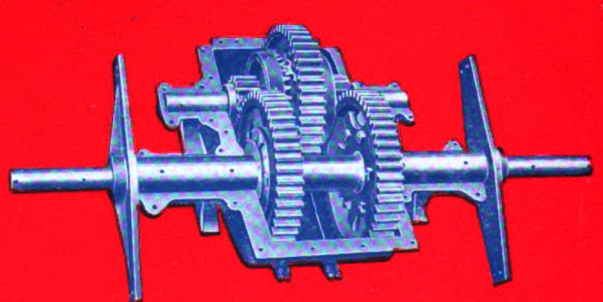
Horse Power: 16 H. P. at belt; 9 H. P. at draw-bar. **Motor:** 4 cylinder, 3½ x 5¼ inches. **Speed:** 6 forward and reverse, 2 to 3½ miles per hour. **Pulley:** 10 x 6 inches — speed, 600 to 1,000 R. P. M. **Fuel Capacity:** Gasoline, 8 gallons; kerosene, 20 gallons. **Water Tank Capacity:** 9 gallons. **Rear Wheel Dimensions:** 46 x 10 inches. **Wheel Base:** 85 inches. **Width:** 57 inches. **Height:** 66 inches to top of steering wheel. **Net Weight:** 3800 lbs.

All Gears Run in Oil

Most tractors are driven by a gear in the traction wheel or by a chain on the sprocket. Sand and dirt are bound to cut the gears and sprockets. Power is wasted. Repairs are costly. The tractor is out of service when most needed in the field.

This can't happen to the National.

The large gears illustrated are each bolted to an individual steel sleeve having arms which are bolted to the driving wheels. These large gears mesh with the small gears on jack shaft. This compact assembly permits encasing the entire driving mechanism in a dust tight case. Every gear turns in a constant bath of oil. It means an enormous saving of power and lowest operating cost.



Any Plowing Speed You Want

National Tractors have the famous Denning friction drive. The crank shaft of the engine is extended to take a heavy fibre friction disc. The illustration shows the two steel discs which run at right angels to this friction disc. These discs are directly controlled by hand levers for forward and reverse speeds. The friction disc is moved forward or backward on the surface of these steel discs regulating the speed according to the plowing conditions. Think of having a tractor with a variable speed to mee any soil condition.

Drive Wheels Independently Controlled

You can't stall a National. The combination of friction disc and rear axle construction makes it possible to "brake" each drive wheel individually and by a slight turn of the steering wheel the tractor pulls itself out of any hole.

DEALERS: Address all correspondence to National Tractor Co., 455 National Life Bldg., Chicago, Ill.

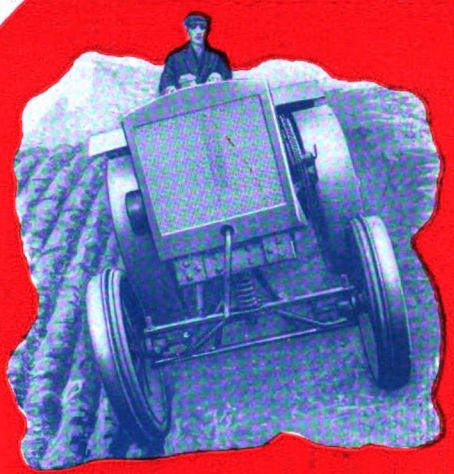
NATIONAL TRACTOR CO. NATIONAL LIFE BUILDING

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-SHORT TURNING

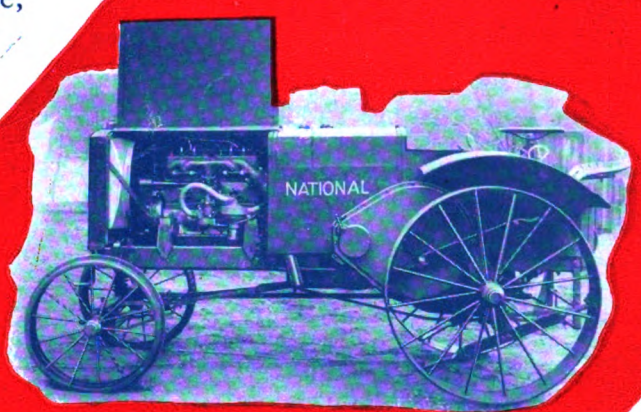
Low Center Of Weight for Hillside Plowing

See the way the National holds to the road. Its low center of weight makes it one of the most serviceable machines for work in rough country, hillsides, vineyards or rolling wheat fields. There is plenty of clearance—no exposed gears to mire down—just the positive transmission of every unit of engine power for the work to be done.



A Profitable Machine to Sell

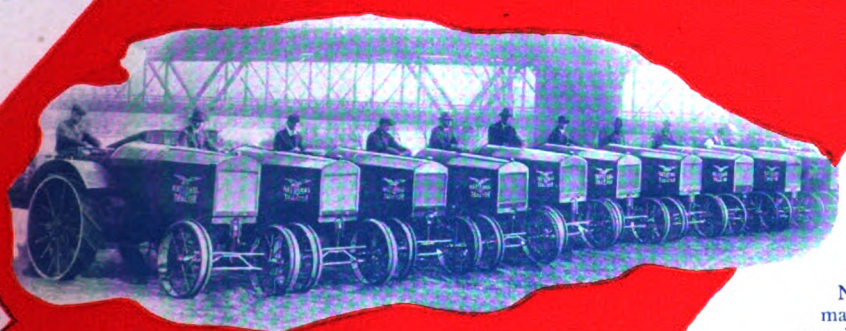
Agents for the National have less service trouble than most tractor representatives, There are no gears to cut or strip—no expensive transmission to replace, no extra repairs to buy. Any one who can drive an automobile can drive a National.



SPECIFICATIONS

Model "F"—Three Plow

Horse Power: 20 H. P. at belt; 12 H. P. at draw-bar. **Motor:** 4 cylinder, 4½ x 5½ inches. **Speed:** 6 forward and reverse, 2 to 3½ miles per hour. **Pulley:** 10 x 6 inches—speed, 600 to 1,000 R. P. M. **Fuel Capacity:** Gasoline, 10 gallons; kerosene, 24 gallons. **Water Tank Capacity:** 11 gallons. **Rear Wheel Dimensions:** 46 x 10 inches. **Wheel Base:** 85 inches. **Width:** 61 inches. **Height:** 60 inches to top of steering wheel. **Net Weight:** 4200 lbs.



Perfect Draw-Bar

The National Tractor has the nearest approach to the perfect draw-bar. The center of tread of drive wheels is 51 in. Model "F" pulls three 14 in. plows in any soil fit to cultivate. This is equivalent to a 42-inch furrow.

So it is plain to see that there is a close approch between the center of tread—25½ in.—and the line of draft—21 in. Many tractors vary in these two dimensions as much as 25 in. This means lost power because of the friction and side draft the tractor must overcome in plowing.

Light Weight for Its Power

The day of the perfectly balanced tractor is here. National tractors—Model "E" and Model "F"—have maximum efficiency for their weight. Surplus weight requires more fuel to move the extra load. There is a big saving in the shipping cost of a National. The National has the weight and pull where they belong—at the draw-bar.

Standardized Construction

National Tractors combine the perfect motor, the perfect transmission, the perfect carburetor and magneto—each unit made for us by companies with a manufacturing responsibility of millions of dollars. You get NATIONAL SERVICE reinforced by years of experience and the collective guarantee of these part makers.

Larger Capacity—Quantity Shipments

Recent factory developments give us bigger capacity. No contract is too large for us to fill. Resources—skilled labor, material, money—have made the National one of the big tractor successes. **Prompt shipment is assured all rush orders sent by cable.**

BUYERS: Advise us at our Chicago office, 455 National Life Bldg., if you wish to see a demonstration.

CAGO ILL., FACTORIES, CEDAR RAPIDS, IA. U.S.A.

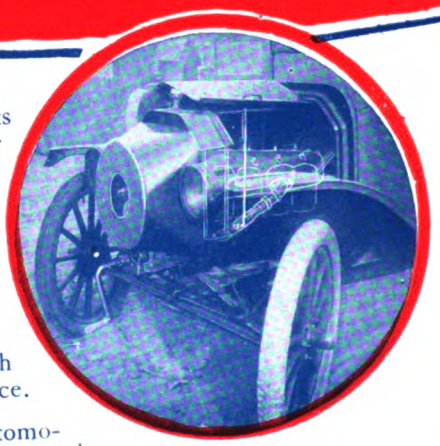
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NATIONAL TRACTOR ATTACHMENT



National Tractor Attachments convert the Ford, and other widely used automobiles, into reliable farm tractors for lightening farm work.

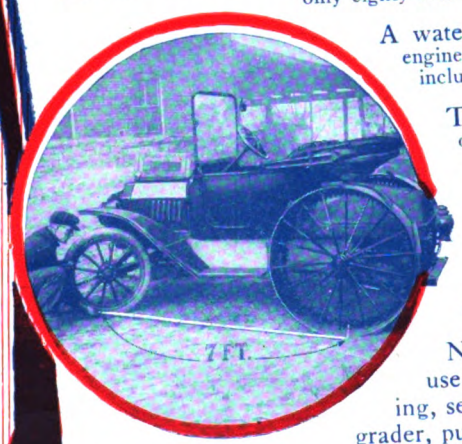
Years of standard tractor building experience insure correct design, the best material for each part and a simplicity and dependability which guarantee satisfactory performance.



It is a simple matter to replace the automobile wheels with powerful 42-inch tractor wheels. The underframe of the attachment becomes a permanent part of the auto. Wheels and fenders can be put back on auto in a short time without removing the draw-bar of attachment.

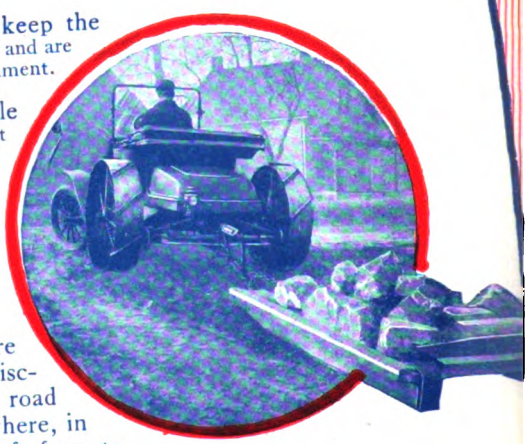
National Tractor attachments make of the auto a compact, all-purpose farm tractor with a wheel base of only eighty-four inches.

A water circulator and auxiliary fan keep the engine cool under heavy, continuous work, and are included with each National Tractor Attachment.



There is no weight on rear axle of automobile. A forged steel shaft supports auto and tractor drive wheels. Steel driving pinions are keyed on automobile axle for driving bull gear of tractor attachment.

The heavy tractor gear is made in eight steel segments. Any part is easily and cheaply replaced.



National Tractor Attachments are used the world over for plowing, discing, seeding, hauling loads, dragging road grader, pulling mower and binder—anywhere, in any climate, doing the work of four to six horses.

No better way can be found to put thousands of automobiles in productive service than with this powerful, dependable National Tractor attachment. For the farmer with as little as eighty acres, or wherever a 9-16 H. P. or 12-20 H. P. National tractor is larger than the work requires.

NATIONAL TRACTOR SEAL COMPANY

A Valuable Selling Agency for Automobile Dealers!

OUR BROAD GUARANTEE

National Tractors and Tractor Attachments are guaranteed to fulfill the claims we make to deliver their rated horse power at the drawbar and belt pulley.

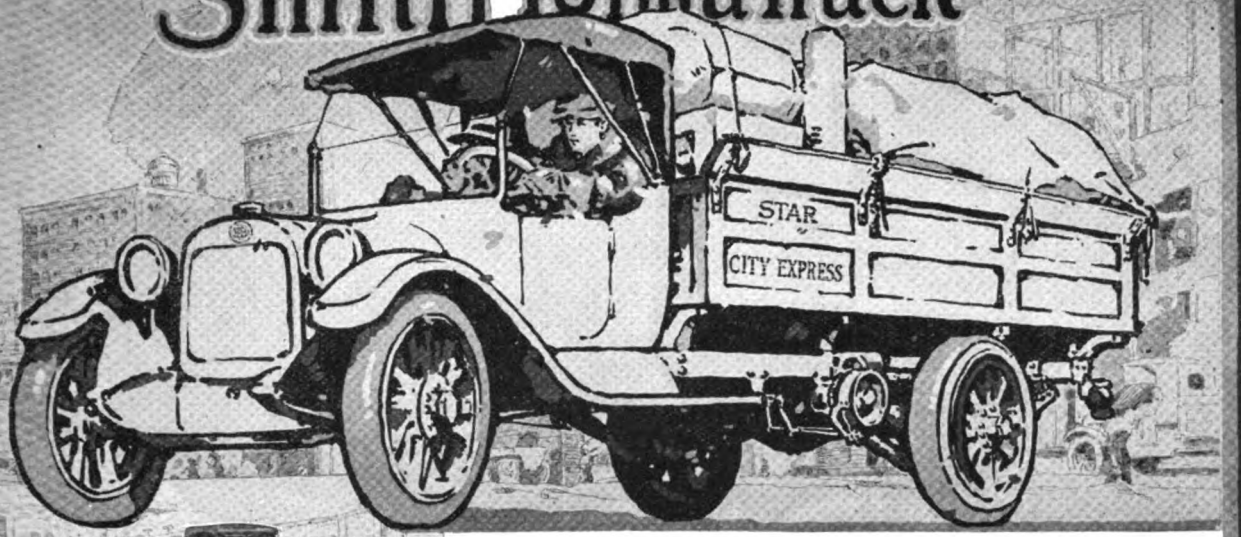
They are warranted to give perfect satisfaction in plowing under any soil conditions fit to cultivate. Defective parts will be replaced free of charge by our authorized representative within one year from date of purchase and delivery - where it is clearly shown that such defect is due to faulty materials or workmanship.

THE NATIONAL TRACTOR COMPANY

NATIONAL TRACTOR CO. NATIONAL LIFE BUILDING CHICAGO ILL
FACTORIES, CEDAR RAPIDS, IA. U.S.A

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Smith Form-a-Truck





Standard One Ton Smith Form-a-Truck with Ford Power Plant. Armour & Company, Chicago.



Universal One Ton Smith Form-a-Truck with Studebaker Power Plant. C. J. Lawrence & Bros., Chicago



Universal One Ton Smith Form-a-Truck with Overland Power Plant. White Eagle Coal Co., Chicago



Universal One Ton Smith Form-a-Truck with Cadillac Power Plant. Jas. McCredie, Elgin, Ill



Universal One Ton Smith Form-a-Truck with Kissel-Kar Power Plant. Rock Island Fuel Co., Davenport, Ia

Your Used Car Problem

Profitably Solved With the Universal Smith Form-a-Truck

(Fits All Makes of Cars)

The Universal Smith Form-a-Truck Means for You—

—an attachment that will quickly, easily and efficiently convert your stock of unsalable second-hand cars into profitably salable motor trucks—

—it is an acknowledged fact that about 70% of the second-hand cars in dealers' hands are mechanically good—the style element is the cause of their being for sale—not mechanical decadence—there's years of good service to be had from these motors—

—that does not alter their unsalability as pleasure cars—it does, though, make them available for commercial car purposes—

—these winter months are hard on this used car stock—in a few weeks spring has added another year to their unsalability—

—NOW is the time to cash this stock—now when your shop is not too busy—now while the ice and snow are crippling horse-drawn deliveries—NOW is your chance—

—make a list of these cars you own—put a fair sales value on the old chassis—couple them up with a Smith Form-a-Truck and change your questionable assets to money in the bank—

—5 hours' time and the job is done—a dependable, efficient, economical truck—

—mail us a list of your used cars today—name and model—let us tell you just how to turn them into quick money—

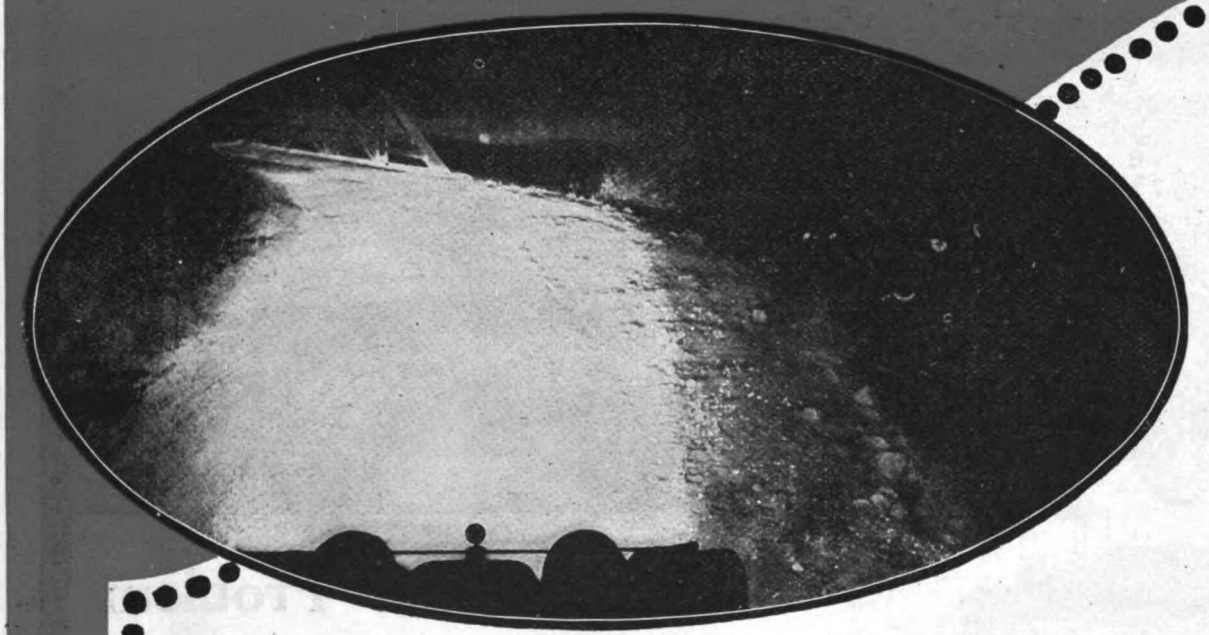
One-Ton Universal (for cars of less than 30 h. p.)	$400
Two-Ton Universal (for cars over 30 h. p.)	500
One-Ton Standard (for Ford cars)	350

Ask about our Trade Discount for Winter Conversions

SMITH MOTOR TRUCK CORPORATION

Michigan Avenue at Sixteenth Street, Chicago, Illinois

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Unretouched Midnight Photograph by Fowler, Evanston, Illinois

Makes Night Driving Safe

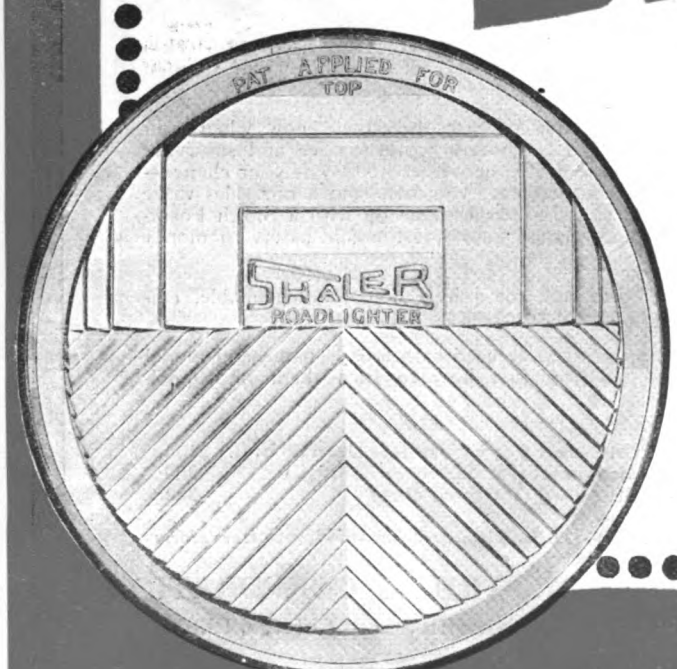
The motoring public has been waiting for a headlight front that performs three distinct functions:

1. To prevent glare from the lights on your own car.

2. To give you a *strong* driving light — so strong that no matter how intense the glare from the approaching car, you will not be blinded but can see the edge of the road clearly and pass in safety without slowing down.

3. *To make night driving safe*—by giving an intensified bright white light which is evenly distributed by prismatic refraction on the road where you need it, so that you can see the road, ditches and danger spots just as plainly as in daytime.

SHALER



The SHALER Roadlighter concentrates the light—which with an ordinary lens is wasted—as extra light on the road. At a distance of 200 feet ahead of the car the light on the road is approximately twice the intensity of that from a bulb of the same candle power, projected through a clear glass headlight.

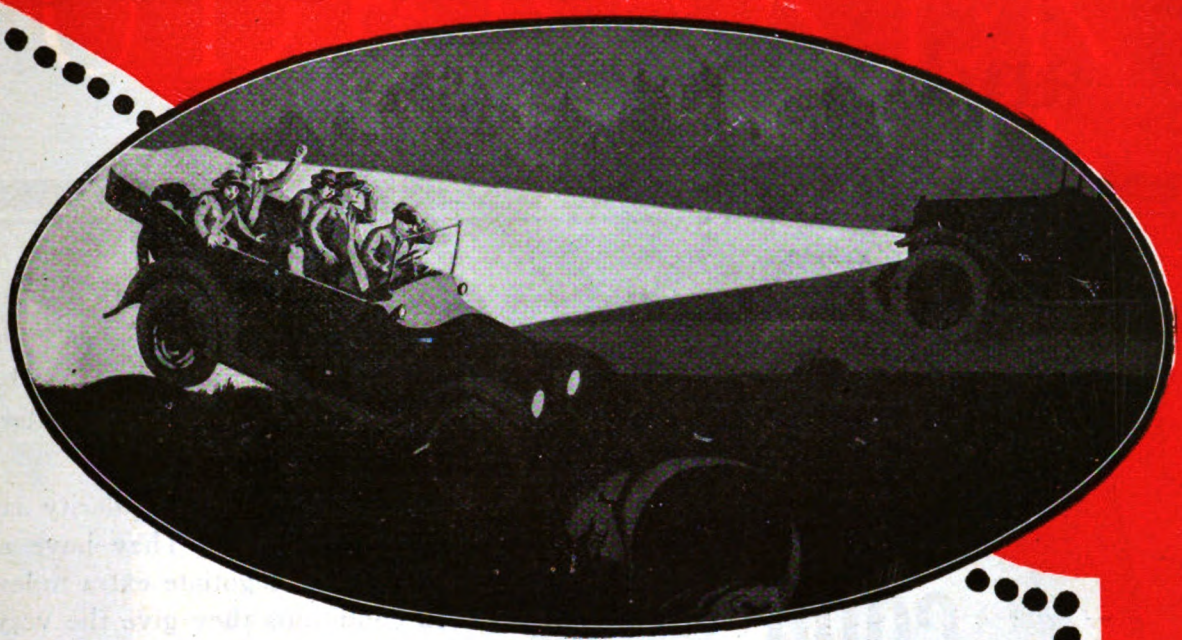
It obviates the need of dimmers, spotlights, auxiliary headlights and high candle power bulbs, which drain the batteries and impair ignition.

It pierces fog farther than you could see through it by daylight. Its smooth front does not collect mud, snow or dirt.

C. A. Shaler Co.
Waupun

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SHALER Roadlighter on Either Car Would Insure Safety



Prevents Accidents Like This

The danger of night driving is banished because *the other fellow's glare can't blind you* and your light cannot bother him, if your car is equipped with SHALER Roadlighters. You have intense light from fence to fence that enables you to pick the best part of the road and drive at daylight speed in perfect safety.

The SHALER Roadlighter throws concentrated beams on the edges of the road such as could only be obtained by using a spotlight on each side of the car. This beam is so strong that it counteracts the glare from approaching headlights and enables one to keep a clear view of the edges of the road while passing.

ROADLIGHTER

Pierces the Glare of Approaching Headlights
Illuminates the Ditches
Accurate Focusing Unnecessary
Easy to Keep Clean

Shoots the Light Far Ahead
Legal Everywhere
Rays Penetrate Fog and Dust
Easy to Install

Limited Offer to DEALERS ONLY

Regular retail prices of the SHALER Roadlighter are $2.75 per pair for Ford size and smaller; $3.50 for larger sizes. Packed ten in a carton.

We want every automobile accessory dealer in the United States to try out a pair of SHALER Roadlighters on his own car—*at our expense.*

Mail the coupon for full particulars regarding this big offer. There is no obligation—don't put it off—clip and mail coupon *now.*

9402 Fourth St.
Wisconsin

Dealers' Offer Coupon

C. A. SHALER CO., 9402 Fourth St., Waupun, Wis.

Gentlemen: Send me full particulars about your offer to let dealers try out a pair of SHALER Roadlighters at your expense. This obligates me in no way.

Name.....

Address.....

City and State.....

My Jobber's Name Is.....

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The Tire That Goes Out and Gets Business



Every time you sell a Century-Plainfield Tire you're sending out a salesman.

The man who bought comes back—certainly—he's a booster, but better yet—his friends come, too.

Century-Plainfield popularity is founded on performance. They have an inbuilt capacity to negotiate extra miles. Under all conditions they give the very limit of wear.

"Quality First"—that's the Century-Plainfield slogan and on that formula they're built.

The very finest quality of materials in the world go into their makeup and these are combined and fashioned into shape by time-seasoned experts.

No whit of anything that would make for better tires has been neglected.

Century-Plainfield agencies may be secured by high class dealers—and with the privilege of handling this great line will go the complete co-operation of the Century-Plainfield organization and an opportunity for generous and continued profits.

CENTURY-PLAINFIELD TIRES

CENTURY-PLAINFIELD TIRE CO.,

Century-Plainfield Tire Company, a subsidiary of the Rubber Insulated Metals Corporation, Exclusive manufacturers of the RIMCO Rubber Products by the EL-CHEMCO process.

Plainfield - - - - - - - - - New Jersey

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STUDEBAKER

Presents

THREE NEW CARS

The Four - The Light Six - The Big Six

Beautiful in design
Thoroughly modern
Mechanically right



The BIG SIX

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THE NEW SERIES 19 STUDEBAKER CARS, in three models, embody our long experience together with the latest and greatest achievements of some of the ablest and most experienced engineers and production experts in the automobile industry. These cars are *new throughout*, with improved motors, intermediate transmission, new axles, bodies, tops, windshields, radiators, hoods, fenders, etc. They are beautiful in design, thoroughly modern and mechanically right.

Before finally approving these cars for production, experimental models of each car were driven 30,000 miles under the severest conditions, through the mountains and country roads of the United States and Canada, and finally over the Chicago Speedway. Never were we better satisfied with the performance of any cars, in power, speed, endurance and riding comfort. To make assurance doubly sure, the experimental cars, now running on the Chicago Speedway, will be kept running continuously until they negotiate 50,000 miles or more, about twice the distance around the earth. These cars are the masterpieces of the Studebaker organization.

The new cars include three models, all entirely different and each with an individual appeal. *We know* these cars will give our customers maximum service and economy, with practically no expense for repairs except from wear and tear or in the case of accidents.

The LIGHT-FOUR Five-Passenger, shipping weight 2,400 lbs., wheelbase 112 inches, tires 32"x3½", 35 H.P. motor, 3½"x5", hot spot manifold, intermediate transmission, improved semi-floating rear axle, Studebaker blue body finish, applied in twenty-four operations, French plaited upholstery. Price for touring car or roadster, $895 f.o.b. Detroit.

The LIGHT-SIX Five-Passenger, shipping weight 2,800 lbs., wheelbase 119 inches, tires 32"x4", 50 H.P. motor, 3½"x5", hot spot manifold, intermediate transmission, improved semi-floating rear axle, either blue or maroon body finish, applied in twenty-four operations, French plaited upholstery. Price for touring car or roadster, $1295 f.o.b. Detroit.

The BIG-SIX Seven-Passenger, shipping weight 3,000 lbs., wheelbase 126 inches, tires 33"x4½", 60 H.P. demountable head motor, 3⅞"x5", hot spot manifold, intermediate transmission, improved semi-floating rear axle, either chrome green or maroon body finish, applied in twenty-four operations, French plaited upholstery. Price for touring car, $1695 f.o.b. Detroit.

During 1915, 1916 and again in 1917, more Studebaker cars were registered and operated in the city of Detroit—the city which knows automobiles and the standing of manufacturers—than any other make of car selling over $500. The lesson is obvious.

Studebaker factories at Detroit, South Bend, Chicago and Walkerville, occupy 168 acres, contain 4,704,118 square feet of floor space, and represent an investment of over $15,000,000. There are no "assembler's" profits in the prices of Studebaker automobiles, because we design and manufacture our parts in our own plants, saving our customers from twenty to thirty per cent.

We commend these cars to the public and seek their patronage, in confidence that they will be entirely pleased with their purchase.

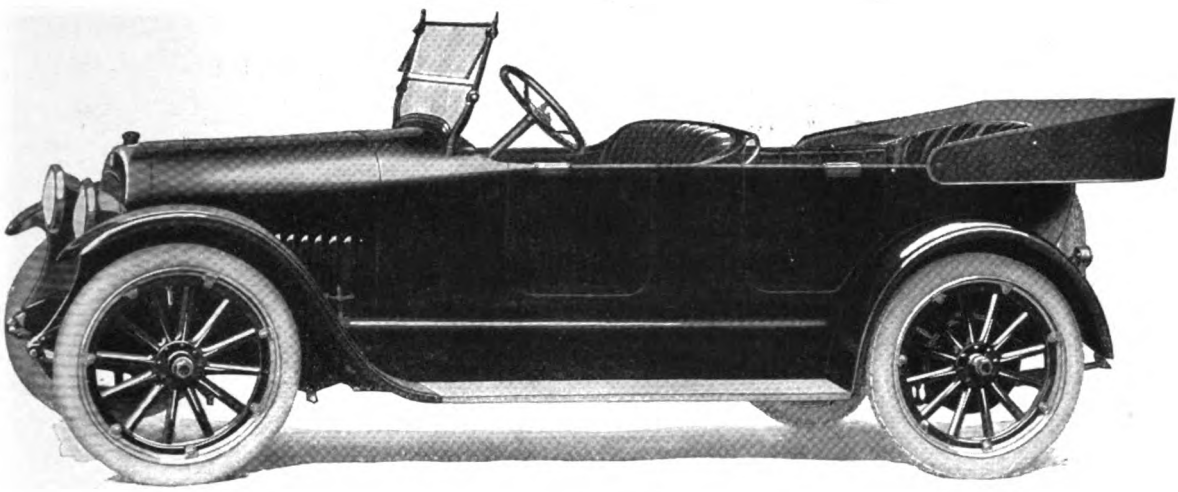
THE STUDEBAKER CORPORATION OF AMERICA,

A R Erskine

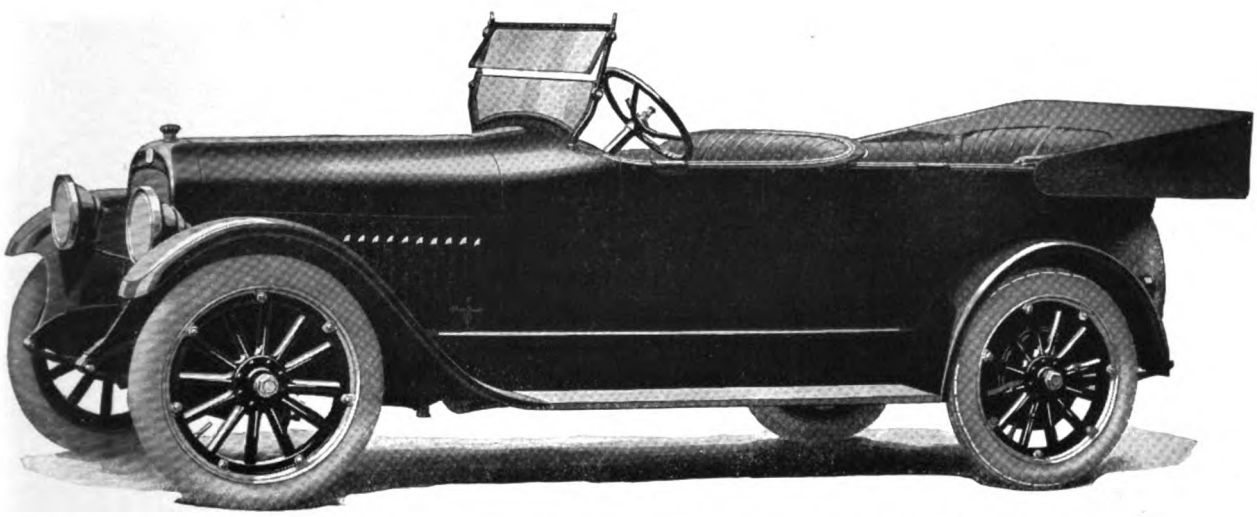
President.

South Bend, Indiana,
January 3d, 1918.

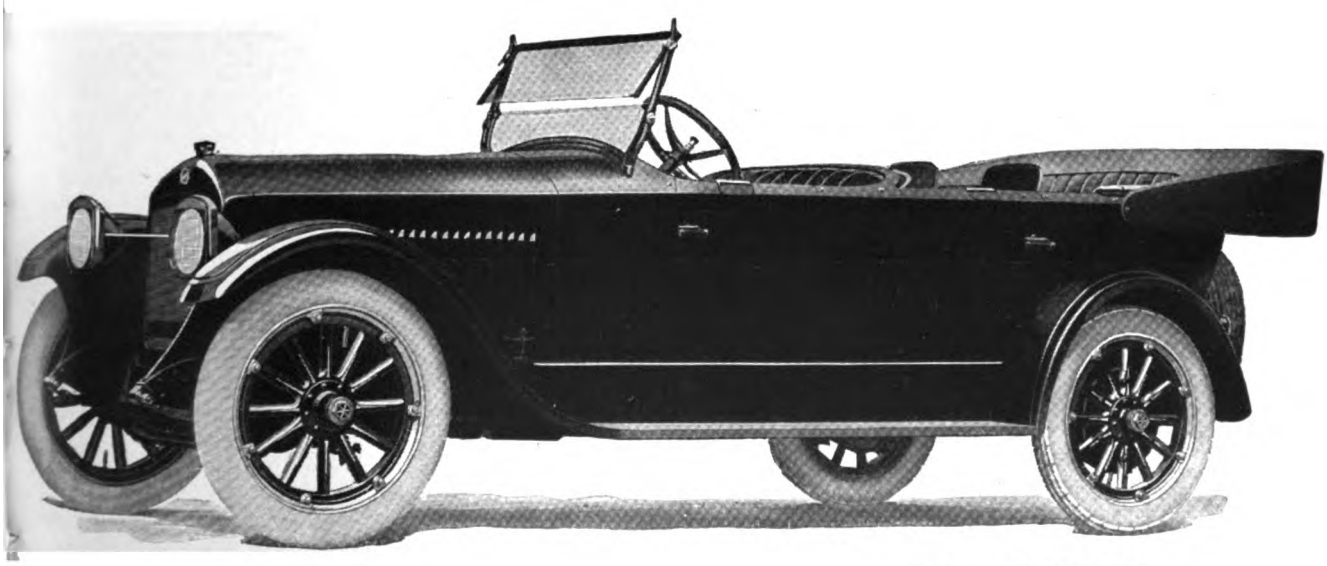
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The FOUR

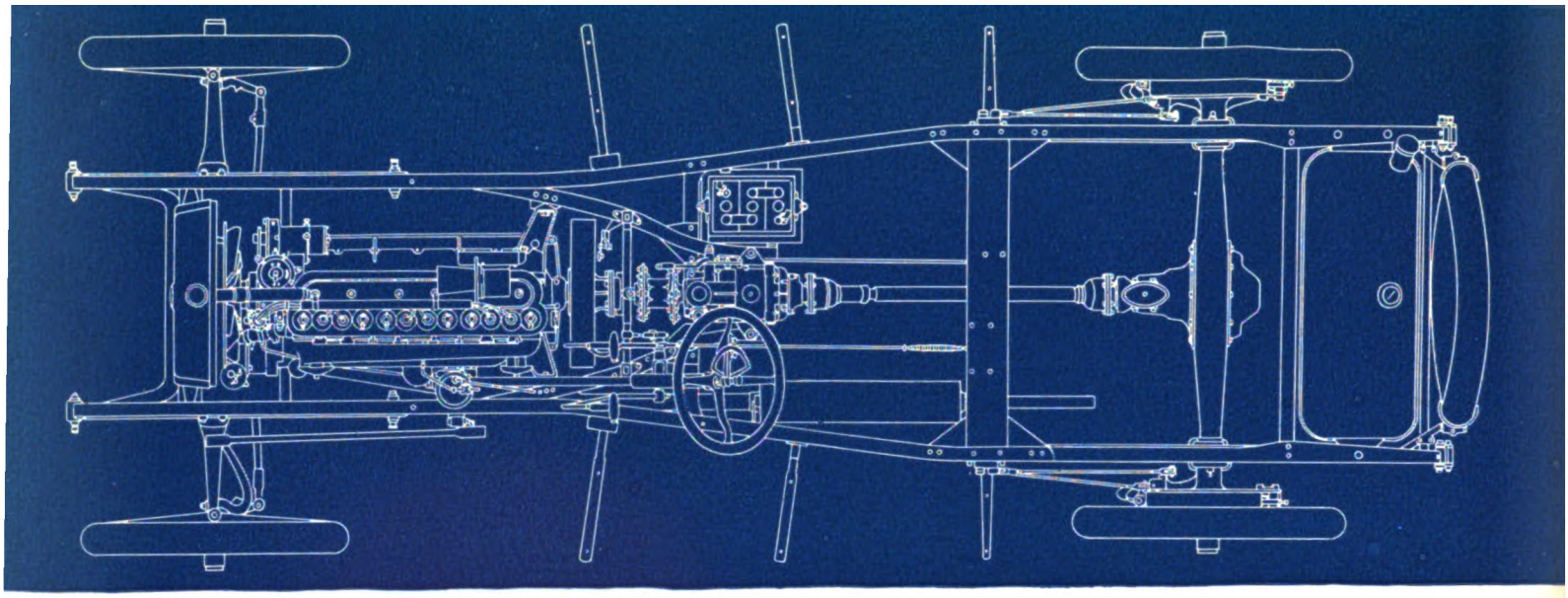


The LIGHT-SIX



The BIG-SIX

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SPECIFICATIONS—Series 19—Studebaker Cars

The FOUR

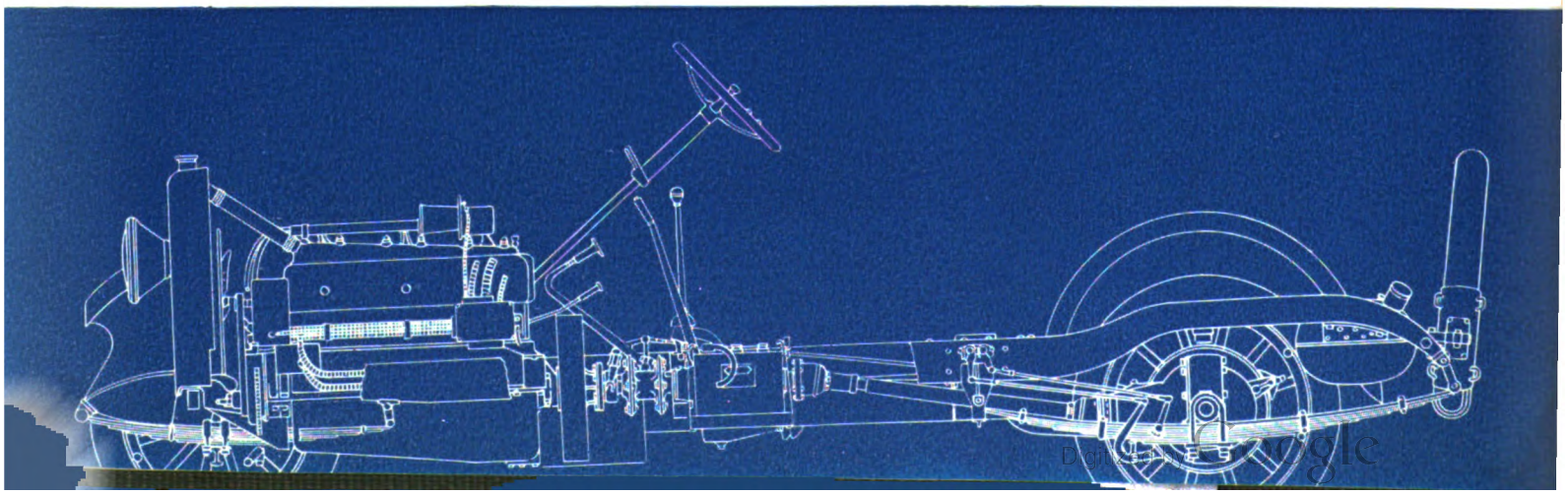
Seating Capacity, five passengers. *Wheelbase*, 112 inches. *Motor*, four cylinders, cast en bloc, L-head type, 3½" x 5"; 35 h. p. *Lubrication*, splash and positive distribution. *Cooling System*, centrifugal force pump circulating system; tubular radiator; 18", six-blade fan. *Carburetion*, Schebler carbureter, with new type hot spot intake manifold. *Gasoline System*, 14-gallon tank in rear; vacuum feed. *Electric System*, two-unit Studebaker-Wagner. *Ignition*, generator-storage-battery ignition, with Remy coil and distributor. *Electric Lights*, large headlights with improved deflecting and diffusing lenses, speedometer light, tail light. *Clutch*, aluminum leather-faced cone clutch with dampening brake. *Transmission*, intermediate—three speeds forward, one reverse. *Gear Ratio*, 4 to 1. *Rear Axle*, Studebaker, improved semi-floating, spiral bevel gear drive, full Timken bearing equipment. *Drive*, Hotchkiss. *Springs*, front and rear semi-elliptic; front 34½ x 1¾, 7 leaves; rear, 50¼ x 2, 7 leaves, underslung. *Tires*, 32 x 3½; safety tread on rear. *Fenders*, heavy pressed steel, crowned. *Upholstery*, French plaited. *Top*, leatherized, one-man type; Blackmore storm door curtains. *Equipment*, rain vision slanting windshield; 3½" carpet-covered footrest in tonneau; complete set of tools; electric horn; electrically-lighted instrument board on which are mounted Stewart-Warner Speedometer—driven from propeller shaft—oil indicator, ignition and lighting switch, carbureter adjusting devices; combination nickel robe and hand rail extending full width of front seat; gasoline gauge on tank in rear. *Color*, Studebaker blue. *Price* for touring car or roadster, $895 f.o.b. Detroit.

The LIGHT-SIX

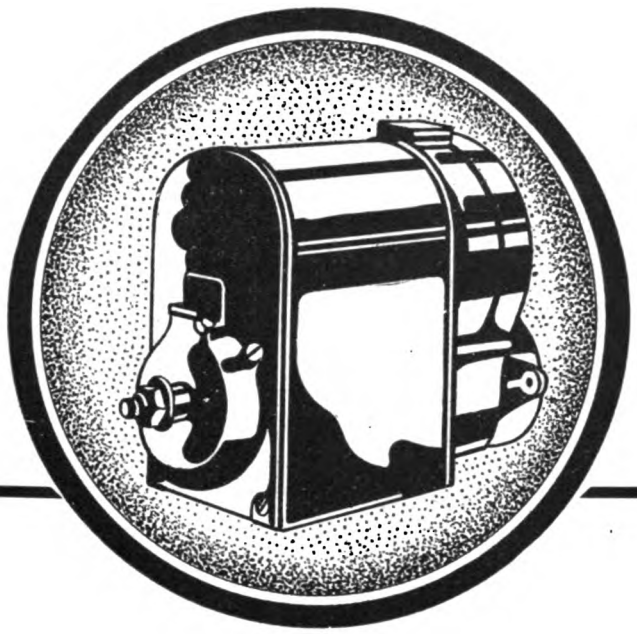
Seating Capacity, five passengers. *Wheelbase*, 119 inches. *Motor*, six cylinders, cast en bloc, L-head type; 3½" x 5"; 50 h. p. *Lubrication*, splash and positive distribution. *Cooling System*, centrifugal force pump circulating system; tubular radiator; 18", six-blade fan. *Gasoline System*, 17-gallon tank in rear. Vacuum feed system. *Carburetion*, Schebler carbureter, with new type hot spot intake manifold. *Electric System*, two-unit Studebaker-Wagner. *Ignition*, generator-storage-battery ignition, with Remy coil and distributor. *Electric Lights*, large headlights with improved deflecting and diffusing lenses, speedometer light, tail light. *Clutch*, aluminum leather-faced cone clutch with dampening brake attachment. *Transmission*, intermediate—three speeds forward, one reverse. *Gear Ratio*, 4 to 1. *Rear Axle*, Studebaker improved semi-floating, spiral bevel gear drive, full Timken bearing equipment. *Drive*, Hotchkiss. *Springs*, front and rear semi-elliptic; front, 38 x 2, 7 leaves; rear, 56 x 2, 8 leaves, underslung. *Tires*, 32x4; safety tread on rear. *Fenders*, heavy pressed steel, oval crown design. *Upholstery*, French plaited. *Top*, leatherized one-man Gypsy type, bevel French plate glass windows in rear; Blackmore storm door curtains. *Equipment*, rain vision slanting windshield; 3½" carpet-covered footrest in tonneau; complete set of tools; electric horn; electrically-lighted mahogany instrument board on which are mounted Stewart-Warner Speedometer—driven from propeller shaft—oil indicator, ignition and lighting switch, carbureter adjusting devices; combination nickel robe and hand rail extending full width of front seat; mahogany glove box, with lock, in back of front seat; gasoline gauge on tank in rear. *Colors*, choice of blue or maroon. *Price* for touring car or roadster, $1295 f.o.b. Detroit.

The BIG-SIX

Seating Capacity, seven passengers. *Wheelbase*, 126 inches. *Motor*, six cylinders, cast en bloc, L-head type, demountable head; 3⅞" x 5"; 60 h. p. *Lubrication*, splash and positive distribution. *Cooling System*, centrifugal force pump circulating system; tubular radiator; 18" six-blade fan. *Gasoline System*, 17-gallon tank in rear. Vacuum feed. *Carburetion*, Ball & Ball carbureter, with new type hot spot intake manifold. *Electric System*, two-unit Studebaker-Wagner. *Ignition*, generator-storage-battery ignition, with Remy coil and distributor. *Electric Lights*, large headlights with improved deflecting and diffusing lenses, speedometer light, tonneau light with convenient extension; tail light. *Clutch*, aluminum leather-faced cone clutch with dampening brake attachment. *Transmission*, intermediate—three speeds forward, one reverse. *Gear Ratio*, 3.7 to 1. *Rear Axle*, Studebaker improved semi-floating, spiral bevel gear drive, full Timken bearing equipment. *Drive*, Hotchkiss. *Springs*, front and rear semi-elliptic; front 38" x 2", 8 leaves; rear, 56" x 2", 9 leaves, underslung. *Tires*, 33" x 4½"; safety tread on rear. *Fenders*, heavy pressed steel, distinctive crown design. *Upholstery*, French plaited. *Top*, leatherized one-man Gypsy type, bevel French plate glass windows in rear; Blackmore storm door curtains. *Equipment*, rain vision slanting windshield; 3½" carpet-covered footrest in tonneau; complete set of tools; electric horn; electrically-lighted mahogany instrument board on which are mounted Warner Speedometer—driven from propeller shaft—oil indicator, ignition and lighting switch, carbureter adjusting devices, ammeter and Waltham clock, combination nickel robe and hand rail extending full width of front seat; mahogany glove box with lock, on back of front seat; gasoline gauge on tank in rear. *Colors*, choice of chrome green or maroon. *Price* for touring car, $1695 f.o.b. Detroit.



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At the New York Show

Grand Central Palace,
Eisemann Magnetos will be shown in

SPACES D39 and 40

In addition to the standard Eisemann series,
in which there are several improvements,
especial attention is invited to

The New Eisemann Magneto-Generator

This latest Eisemann achievement is of vital
interest to the industry as a whole.
Do not fail to see it!

THE EISEMANN MAGNETO CO.

Sales and General Offices: 32-33d St., Brooklyn, N. Y.

Chicago, Ill., 910 South Michigan Ave.
Detroit, Mich., 802 Woodward Ave.

EISEMANN
MAGNETO

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A BIG NEW ENGLAND BUYER OF AUTOMOBILE SUPPLIES *says:*

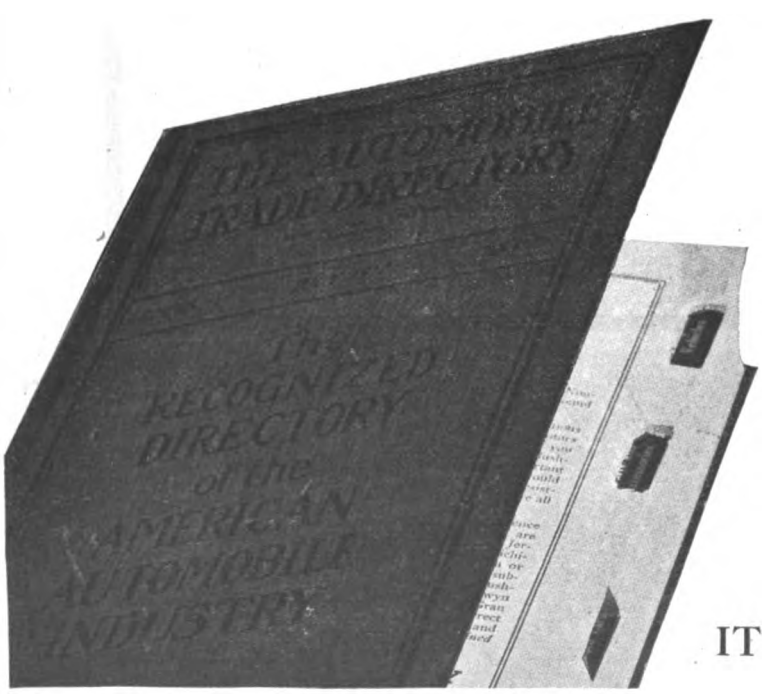
"The service the 'Red Book' has rendered me has been of inestimable value.

All dealers should use the 'Red Book' as a source of information, because it enables them to place their orders through the nearest jobber, enabling speed of delivery, eliminating mistakes in shipment and because the 'Red Book' gives them the proper description and specifications to correctly place their orders."



Secretary
THE POST & LESTER COMPANY

"A Thousand Catalogs in One"



Not only will the "Red Book" act as the dealers catalog file, but it contains among other things over 100 pages of many necessary and frequently used tables and technical information of great value to every progressive dealer and garageman. Cultivating the "Red Book" habit is service insurance to the maker, the jobber and the dealer — consequently to the consumer himself through you.

THE AUTOMOBILE TRADE DIRECTORY
ROBERT WOLFERS, President
243 WEST 39TH STREET, NEW YORK CITY

IT HANGS EVERYWHERE

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THE sweeping success of "Hayes" wire wheels during the past year has been one of the outstanding features of the industry.

Not only have "Hayes" wire wheels established an unprecedented record for sales, but they have also established an unprecedented record for uniform quality.

On light and heavy cars they have proven equally satisfactory.

There is an inevitable attraction of the best to the best that keeps the list of manufacturers using them constantly growing.

Our list of sales and service stations is growing also. There is a live opportunity where such stations are not already established. Write.

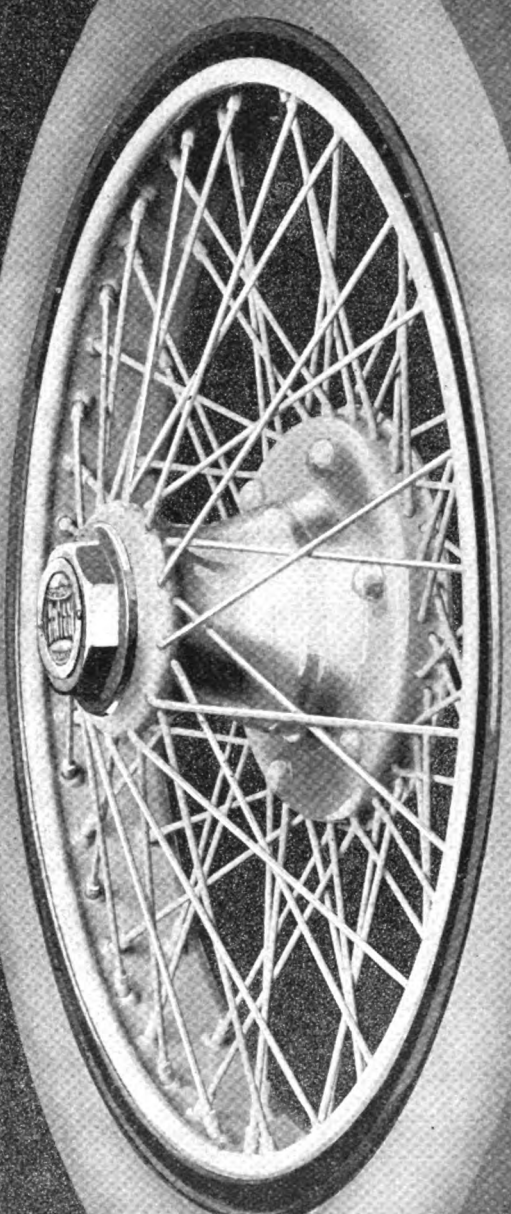
Castle & Kyte

Exclusive Selling Agents

872 Woodward Avenue

Detroit

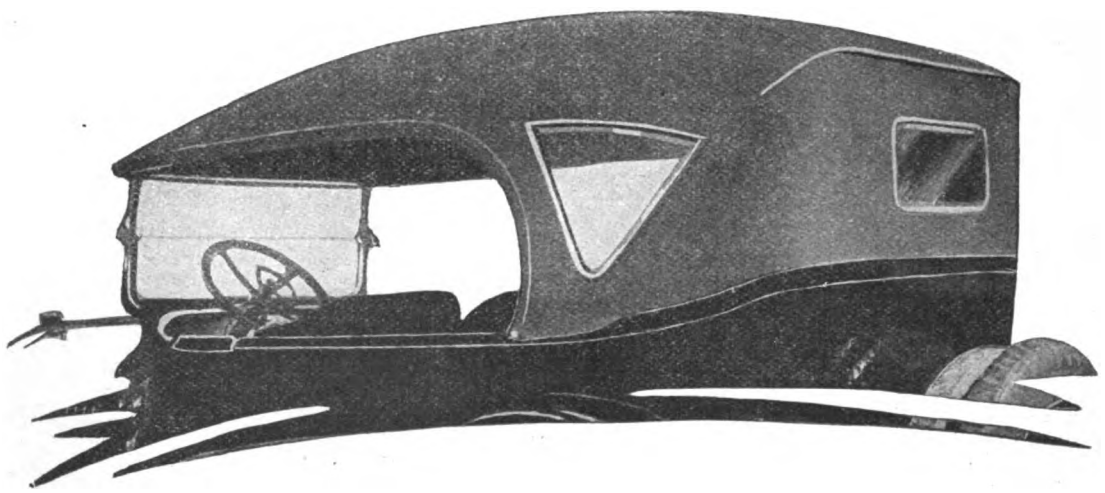
U. S. A.



HAYES WIRE WHEELS

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DU PONT AMERICAN INDUSTRIES



RAYNTITE—The Top That Stays New

Mail This Coupon
marking X before subject that interests you.

	Rayntite Top Material		Fairfield Rubber Cloth
	Motor Fabrikoid		Industrial Dynamites
	Craftsman Fabrikoid		Blasting Powder
	Truck Special Fabrikoid		Blasting Supplies
	Marine Special (U. S. Stand.)		Farm Explosives
	Book Finish Fabrikoid		Hunting
	Fabrikoid Sheeting		Trapshooting
	Py-ra-lin Toilet Goods		Anesthesia Ether
	Challenge Colors		Leather Solutions
	Novelty Sheeting		Soluble Cotton
	Transparent Sheeting		Metal Lacquers
	Py-ra-lin Rods & Tubes		Wood Lacquers
	Py-ra-lin Pipe Bits		Mantel Dips
	Py-ra-lin Specialties		Bronzing Liquids
	Sanitary Wall Finish		Pyroxylin Solvents
	Town & Country Paint		Refined Fusel Oil
	Vitrolac Varnish		Commercial Acids
	Vitrolac Stain Finish		Alums
	Flowkote Enamel		Saltpetre
	Liquid Light for Mills		Wood Pulp
	Antoxide Iron Paint		Pigment Bases
			Tar Distillates
			Dyes and Bases
	Auto Enamel		

Name

Address

City State



Visit the Du Pont Products Store,
1105 Boardwalk, Atlantic City, N. J.

A grey, dingy, faded top will make any car look passè. Don't sell your car because the top looks shabby. Get a new top—a top that stays new.

DU PONT FABRIKOID RAYNTITE

never fades. It is water, grease, stain and dust proof—and as cleanable as glass. When soiled by travel, plain water will restore its beauty. It is guaranteed for one year not to leak, crack nor peel but built to last the life of your car.

Any good top maker can re-top your car with Rayntite.

Check Rayntite in the coupon and send for samples, booklet—and list of cars on which Rayntite is furnished as regular equipment.

Du Pont Fabrikoid Company

World's Largest Makers of Leather Substitutes

Wilmington - - - Delaware

Works at Newburgh, N. Y., and Fairfield, Conn.

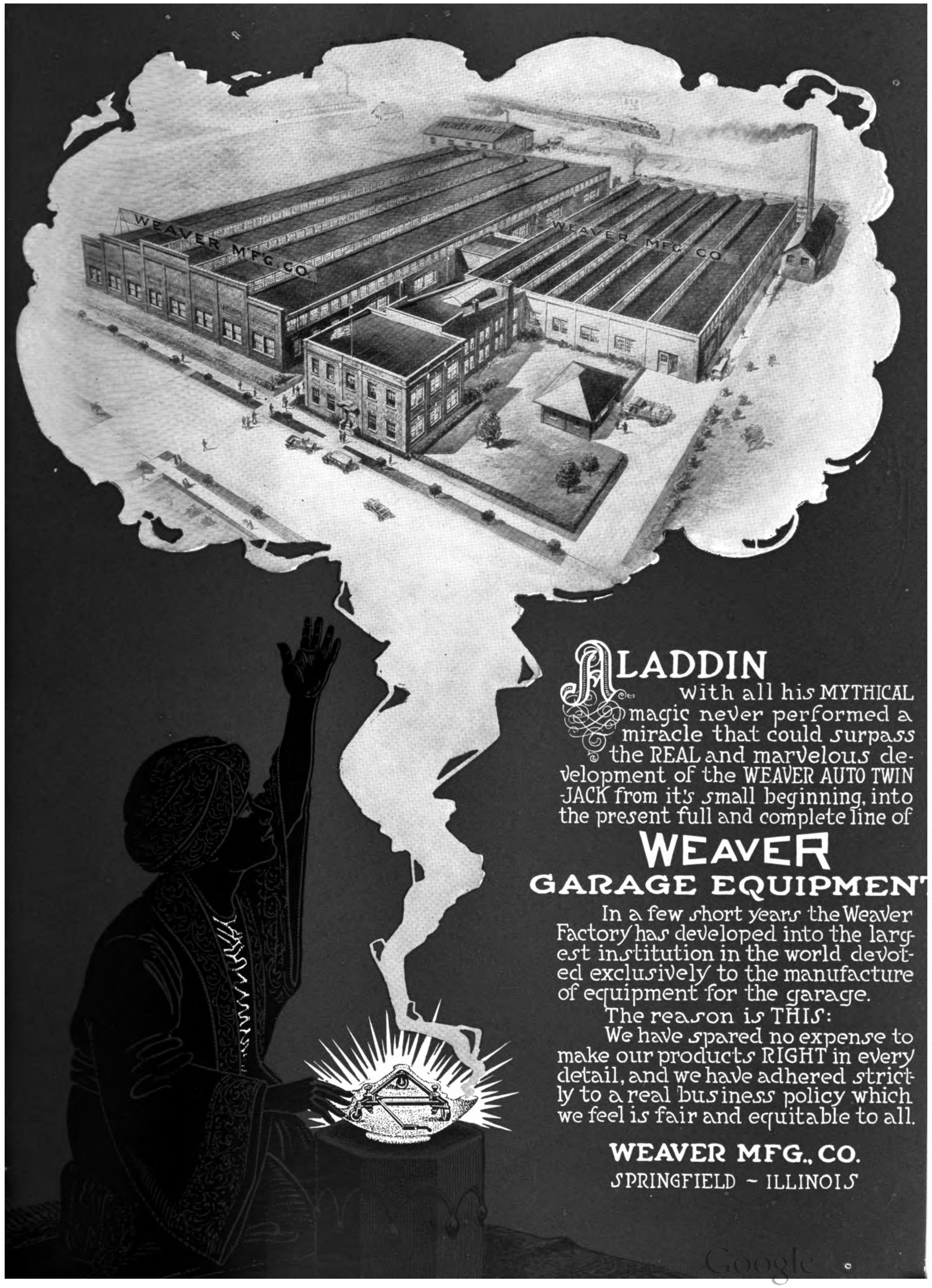
Canadian Office and Factory, New Toronto, Ont.

The Du Pont American Industries are:

E. I. Du Pont De Nemours & Company, Wilmington, Delaware. Explosives.
Du Pont Chemical Works, Equitable Bldg., New York. Pyroxylin and Coal Tar Chemicals.
Du Pont Fabrikoid Company, Wilmington, Delaware. Leather Substitutes.
The Arlington Works, 725 Broadway, New York. Ivory Pyralin and Cleanable Collars.
Harrisons, Inc., Philadelphia, Pa. Paints, Pigments, Acids and Chemicals.
Du Pont Dye Works, Wilmington, Delaware. Dyes and Dye Bases.

DU PONT

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ALADDIN

with all his MYTHICAL magic never performed a miracle that could surpass the REAL and marvelous development of the WEAVER AUTO TWIN-JACK from it's small beginning, into the present full and complete line of

WEAVER GARAGE EQUIPMENT

In a few short years the Weaver Factory has developed into the largest institution in the world devoted exclusively to the manufacture of equipment for the garage.

The reason is THIS:

We have spared no expense to make our products RIGHT in every detail, and we have adhered strictly to a real business policy which we feel is fair and equitable to all.

WEAVER MFG., CO.

SPRINGFIELD ~ ILLINOIS

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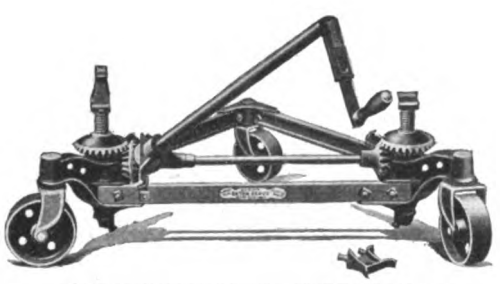
WEA
GARAGE



AUTO TWIN-JACK, Regular

Every Item in the Line Is A Real Necessity.

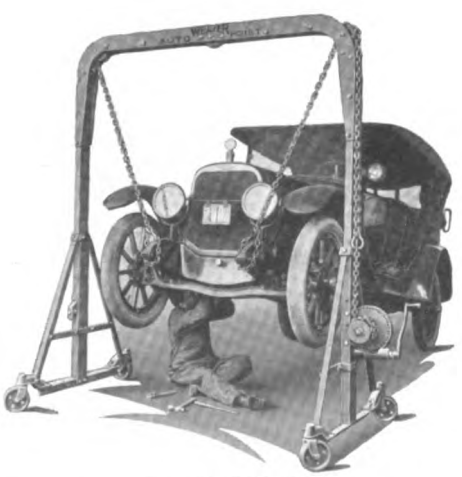
EVERY ARTICLE of Weaver Garage Equipment is the product of very careful study of Garage conditions and requirements.



AUTO TWIN-JACK, Extra Heavy

We make nothing except Garage Equipment—therefore the entire talent and energies of our designers and mechanical engineers are devoted exclusively to diagnosing the garage situation and to developing and perfecting equipment to best meet the peculiar requirements of that ever-increasing industry.

Each article is a time and labor saver—and consequently a money maker for the garage owner or repairman.



AUTO HOIST



TIRE SPREADER



AUTO OILER

See Our Exhibits

New York

Booths Nos. D-80 and D-81

Fourth Floor



TOWING

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VER EQUIPMENT

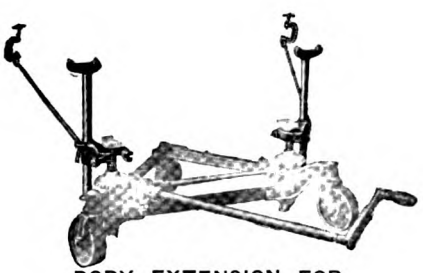
Efficient Service Requires Proper Equipment

THE ACTUAL NEED of Weaver Equipment in Garages and Auto Repair Shops is greater today than ever before.

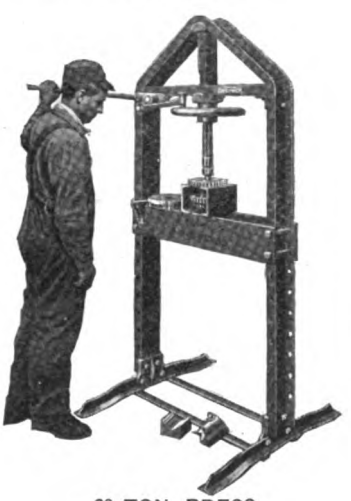
Competition in garage and repair service is becoming keener every day—therefore the shop which is prepared to give the most prompt and satisfactory service is the one that will draw the most satisfactory class of patronage.

Then another point—

The shortage of help—due to the War—is going to make it necessary for the live garageman to install every available labor saving device,—that means a FULL LINE of Weaver Garage Equipment.



BODY EXTENSION FOR EX. H. JACKS



20-TON PRESS

At the Auto Shows

Chicago

Booths Nos. 8-C and 8-D

Coliseum Basement



POLE



AUTO AMBULANCE



VALVELESS BUCKET PUMP



TIRE CHANGER

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Facts Worth Knowing

Concerning the "Weaver Line"

ONE VERY SIGNIFICANT FACT IS THAT EVERY ARTICLE IN THE WEAVER LINE IS CONCEIVED AND PATENTED BY MR. WEAVER—THE PRESIDENT OF THE COMPANY. Consequently, each article precisely fills the requirements of some phase of the automobile repair industry which our researches showed needed relief.

Also, by the patentee of our products being a member of the firm, we are not compelled to pay out tens of thousands of dollars in the purchase of miscellaneous patents, as would otherwise be true. Therefore, we are able to give greater value for the money in both materials and workmanship, in addition to superiority in design.

WE ARE SPECIALISTS IN THE DESIGN AND MANUFACTURE OF EQUIPMENT FOR THE GARAGE, WE MAKE NOTHING ELSE. For this reason Weaver products represent more of real value to the garageman than could be true were we endeavoring to market a few promiscuous articles as a "side line."

BY HAVING A LINE OF A DOZEN DIFFERENT ARTICLES ALL OF WHICH ARE APPLICABLE TO EVERY GARAGE, WE ARE NATURALLY VITALLY INTERESTED THAT EACH PURCHASER OF ONE OF OUR ARTICLES RECEIVE THE GREATEST POSSIBLE DEGREE OF SATISFACTION. This frequently is not the case with concerns marketing a few diversified articles with no "second sale" possibilities.

OUR LINE IS CARRIED BY PRACTICALLY EVERY LARGE JOBBER OF AUTOMOBILE ACCESSORIES FROM COAST TO COAST. This means that you have a supply of our goods near at hand for prompt delivery no matter where you may be located.

We were the first to come to the relief of the garageman with a line of equipment especially designed to overcome HIS peculiar difficulties. Today we are the largest institution of this kind in the world —which is positive proof that Weaver Quality is appreciated.

WRITE TODAY FOR CATALOG OF OUR COMPLETE LINE.

Weaver Manufacturing Company

2173-79 SOUTH NINTH STREET

SPRINGFIELD, ILLINOIS.

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The Transportation Problem

THE Railroads *must* be relieved—Goods *must* be moved—The wheels of industry *must* be kept moving.

The Solution of the Problem lies in the use of Motor Trucks for all hauls of one hundred miles or less—Wilson Transportation Engineers will help you in the adaptation of Wilson Trucks to *your* transportation needs.

Wilson Trucks are the product of more than thirty-five years' experience in the building of heavy duty transportation vehicles. One, two, three and one-half, and five ton worm drive models.

We can use a few more dependable dealers in Eastern and Mid-Western Territory

J. C. WILSON COMPANY, Detroit

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"ROPED" OPPORTUNITY

AJAX DEALER'S FRANCHISE



—and BRANDED—AJAX

The profit "round-up" in your territory is on. Alert dealers by the thousands are all set for the big profit opportunity in 1918. There are still a few choice spots open—perhaps your very locality may be one of them on the

Ajax Dealer's Franchise

The Ajax Dealer's Franchise carries strong "inwriting" protection for the dealer, just as Ajax Tires carry a strong Guarantee in Writing 5000 Miles to the tire buyer. It will make your store the dominating tire store in your locality. Get the benefit of our nation-wide advertising campaign that will place us among the biggest advertisers in the country. Sign up with a winner.

97% Owners' Choice

Just think what that means. Of all Ajax output that big proportion—all but 3%—is singled out by motorists to take the place of other tires that came on their cars. Certainly an overwhelming acceptance of Ajax quality—the utmost in tire values.

Ajax Road King

A monarch in quality, a democrat in service. On the road, in competition with other tires, ***AJAX ROAD KING*** gives crowning proof of its superiority. Built for city streets and farm highways. Upholds AJAX reputation for service and endurance under maximum road stress.

Your Territory May Still Be Open

WRITE, WIRE COLLECT, or rush Coupon and learn if this money-making opportunity is still open in your territory.

AJAX RUBBER CO., Inc.
1796 Broadway New York

AJAX RUBBER CO., Inc.,
1796 Broadway, New York

I am interested in the Ajax Dealer's Franchise. Without obligation to me, send complete details.

Name _____

Address _____

City _____ *State* _____

"While Others Are Claiming Quality, We Are Guaranteeing It"

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MOON

Six-45
7-pass. Touring and Club Roadster
$1685
f. o. b. St. Louis

Six-66
7-pass. Touring and Club Roadster
$1850
f. o. b. St. Louis

Style and Stamina

—thoroughly in keeping, however exclusive the surroundings may be—designed, fitted and finished to emphasize the Moon's established reputation for the distinguishable beauty of smart-lined advancements and the most modish and comfortable of interiors. Powerful; smooth-running—equally at home in an emergency or over the trying road of long usage.

See the popular priced Moon Touring Cars. Or, if your preference as to type is the club roadster, coupe, cabriolet, sedan or victoria, you will find its up-to-the-minute example of distinctiveness in the Moon line.

The New Moon Six-36

—the season's most pronouncedly successful motor car debutante. Built and priced to afford six-cylinder riding and driving superiority at the quantity-lot Four first cost and with the after economy of a sturdy tire and gasoline-saving *light* car. The Six-36's specifications include: 114-inch wheelbase—sweeping high double cowl and long, high Fedder radiator—genuine honey-comb — slanting windshield—walnut instrument board, front and rear—solid—beautifully finished—Timken bearings—Spicer Joints.

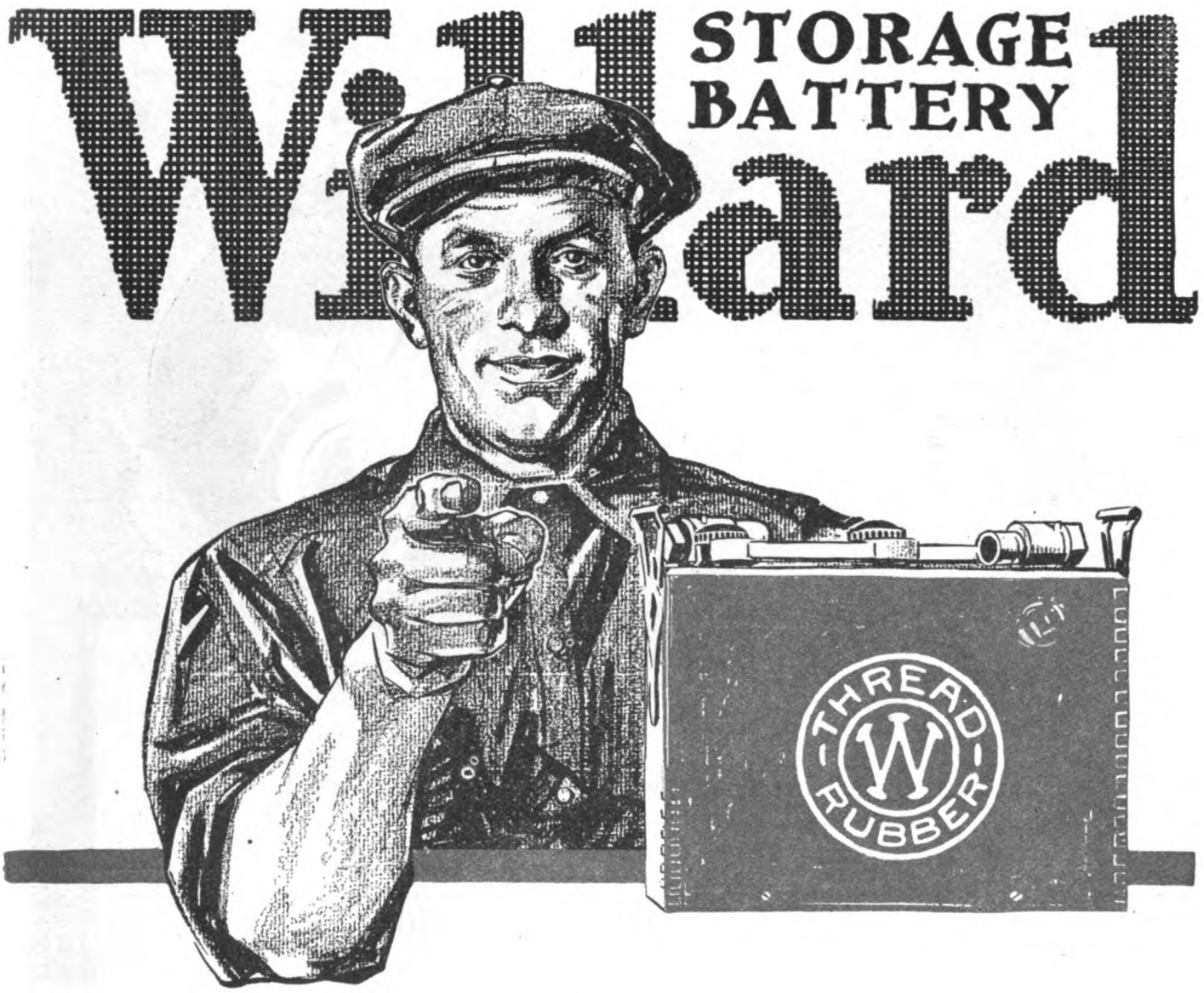
$1195
f. o. b. St. Louis

Car owners and dealers alike have been wondering how we can turn out the Six-36 to sell for $1195. The answer is to be found in the demand for the car, together with a corresponding huge increase in the capacity of our plant. The big new Moon plant and its modern equipment bring our output up to the 10,000-car mark. Territories are being grabbed right and left, and the dealer who wants a location should write at once—or wire.

Prices subject to change without notice.

MOON MOTOR CAR COMPANY
St. Louis, U. S. A.

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My Standard of Service

Before I go any further I want you to know that I'm an actual Willard Service man. The picture above is my real portrait. Thousands of car owners know me, and will recognize it. I'm selected by the Willard organization to represent Willard Service, and I'm going to tell you exactly what we mean when we talk about our standard of service.

First: meeting every customer *more* than half way, being really glad to see him, and glad to help him.

Second: being *properly* equipped to help—thoroughly trained and experienced in all brands of battery care, construction and repair.

Third: maintaining a real station, in a good location, with space in which to do business properly.

Fourth: showing the car owner how to care for his battery and how to avoid things that will injure it and shorten its life.

Fifth: being businesslike, to base fair and just charges on knowledge of actual costs, to give good returns for every penny, and to carry an adequate stock of new batteries, rental batteries and repair parts.

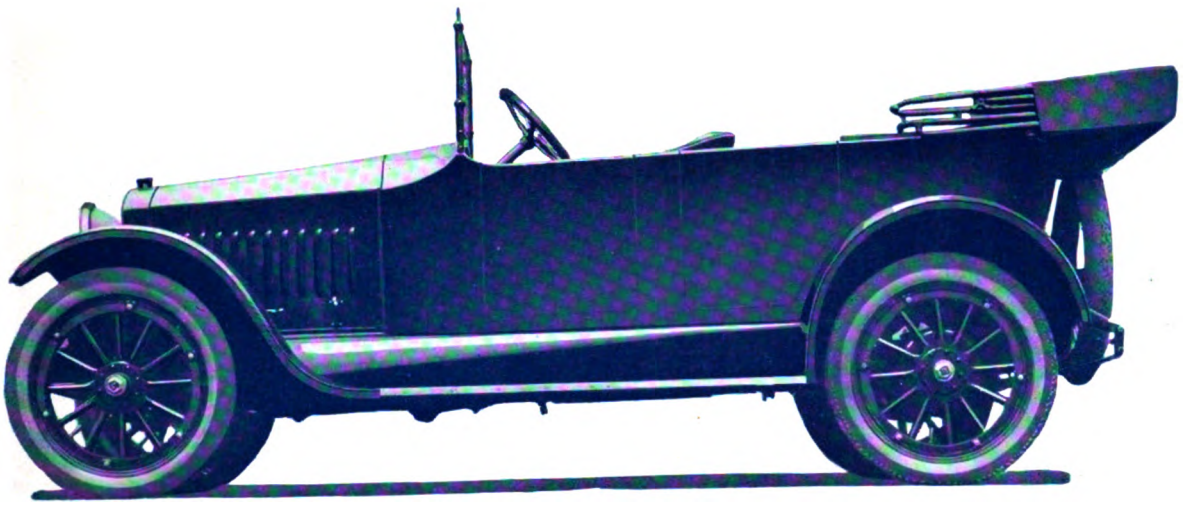
Of course, we're human, and we're not all of us 100% all of the time; but we are honestly and sincerely striving to live up to our standard. We believe Willard Service is the most reliable battery service in America and we're making it better every day.

We welcome your suggestions.

Willard Service.

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LIBERTY SIX



We believe the next page holds a vital answer to your problem of adjusting your business to war-time conditions.

It tells how a distributor, who had spent most of his career selling high-priced cars, sold in his first year over four hundred Libertys.

Many of these were sold to men and women who had formerly purchased expensive cars. Their enthusiasm about the way it rides and drives has sold hundreds of other Libertys.

Briefly, this story suggests a rare opportunity to acquire the franchise for a car of modest size and moderate price, that will deliver the same riding comfort that has hitherto been available only in heavier, costlier cars.

The Liberty not only appeals to those that have been accustomed to cars of the highest price. Its price also attracts a class of buyers who have formerly bought cars that are now advanced several hundred dollars higher than the Liberty.

The Liberty possesses an immediate and unusual appeal. Its qualities are bound to develop extraordinary owner interest that quickly multiplies distribution. It has been demonstrated that it is not dependent on fair-weather business conditions for its market.

We feel, therefore, that you will regard this suggestion as a happy opportunity wherever it is available, to represent a permanently attractive, ready-selling line.

Joseph E. Fields

Director of Sales

Five Passenger Touring	$1350.00
Two Passenger Roadster	1350.00
Four Passenger Roadster	1350.00
Sedan	1925.00
Brougham	2700.00
Landaulet	2700.00

Liberty Motor Car Co. Detroit

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How an Old Dealer Found a Big Market for a New Car

FOR 16 years I had sold cars in New York that were priced among the highest.

Therefore, I don't need to be told that the record of over 400 Libertys distributed in Greater New York by the Colonial Motors during its first year in business is unusual.

For many years previous to taking on the Liberty I had been looking for a moderate-sized, high-grade car, that would satisfy the requirements of those who are accustomed only to the best.

About a year and a half ago I convinced myself that I had found in the Liberty a distinctive-looking, well-built car that would stand up and deliver the driving comfort hitherto obtainable only in a costly, heavy chassis.

How well the Liberty fulfilled my convictions is known at least to every dealer in Greater New York.

The Liberty almost immediately attracted some of the most particular people in New York.

Any well informed New Yorker will instantly recognize over a hundred names in our owner list, of people who are notable in a business and social way.

You will find socially prominent names such as that of Harry Harkness Flagler, William E. Iselin; leaders of finance such as Walter E. Frew, Thomas Denny; and nationally famous professionals such as Olive Fremstad and John Philip Sousa.

I could fill this page with such names, for over a hundred of our best owners have been so well pleased with Liberty performance that they have permitted a public use of their appreciation.

That the car has stood up and delivered is proven by the large proportion of repeat orders that I have had from these high class customers.

We have a policy of not soliciting testimonial letters. However, we do have a custom of sending out a so-called "service" letter to find out how our owners are satisfied with the car and with the way they are being taken care of by our organization.

The answers to these letters are most unusual. In hundreds of instances the owners go out of their way to express their enthusiastic approval of the Liberty. Many of them actually thank us for having sold them the car.

All last season only two of our Liberty owners came to me with complaints over the head of our service manager.

And mind you, 90 per cent of these owners are educated motorists who demand not only smartness, but extraordinary service.

I cannot help but feel from our experience that the Liberty car more nearly approached 100 per cent service in the first year of its existence than any car I know of.

I only wish that it were practicable for us to duplicate our organization in all the prominent distributing centers in the United States and to take on the Liberty line in these cities.

Because the Liberty has so well established the difference in the way it rides and drives; and in the way it delivers permanent quality and service, that I do not feel we would ever want to consider any other make at any price.

John T. Rumsey

President Colonial Motors, Inc.
New York City

LIBERTY SIX

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REO
"THE GOLD STANDARD OF VALUES"

They Will Be Lucky Dealers Who Handle the Reo Line This Year

IN THE FIRST PLACE Reo dealers always make money because, when a Reo is once sold, it stays sold.

WHAT YOU MAKE on the sale of a Reo is "net" to a greater degree than on any other product so far as we know.

REO DEALERS TELL US that it costs the distributor less in the form of "free service" to keep Reo owners satisfied than has been the case with any other line they have ever handled.

THAT "50 PER CENT OVERSIZE," the Reo standard factor of safety, in all vital parts, such as driving shafts, axles, gears, bearings, etc., is of as much satisfaction and profit to the dealer as to the owner.

IT'S A GUARANTEE—and the only real guarantee—that every Reo will fulfill your promises to your customer.

THE REO LINE for the coming season will be just as complete as in the past year and Reo values will be, if anything, still greater.

BUT EVERY DEALER KNOWS Reo quality—and knows it is "The Gold Standard of Values"—each Reo model in its class.

IT'S A JOY TO SELL the kind of automobiles and motor trucks that stand up.

IT'S A PLEASURE—entirely aside from the pecuniary advantage—to feel that every new customer will be a booster for you and for the product you handle.

WE SELDOM CHANGE—we Reo Folk. Never, if a distributor is capable—or even willing—to measure up to the Reo standard of selling and service.

BUT OCCASIONALLY there is an opening and then those dealers who are on record as desiring this line, naturally secure first consideration.

IT MAY HAPPEN that right in your territory a change is due or desirable. (Naturally we cannot say because this publication goes into all sections of the country.)

SO IF YOU ARE LOOKING for a better line for the future, write the Sales Department.

ONCE A REO DEALER, your future is assured if you do your part.

THE REO POLICY is fixed—you know it almost as well as we.

YOU CAN BANK on that policy—its stability, consistency, and fairness to dealers and buyers alike.

SO YOU'D BETTER WRITE—now. You never can tell—the very line you have hoped sometime to represent may now be within your reach.

YOUR COMMUNICATION will be treated in strict confidence, of course.

Reo Motor Car Company

Lansing, Michigan

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Latest and Best Automobile Books

By Victor W. Pagé, M. E.

The Model T Ford Car, Its Construction, Operation and Repair

By Victor W. Pagé, M.E.

This is a complete instruction book. All parts of the Ford Model T Car are described and illustrated; the construction is fully described and operating principles made clear to everyone. Every Ford owner needs this practical book. New edition. 75 illustrations, 200 pages. Large folding plate.

Price, $1.00.

Starting, Lighting and Ignition Systems

By Victor W. Pagé.



A practical treatise on modern starting and ignition system practice. Includes a complete exposition of storage battery construction, care and repair. Explains all types of starting motors—generators—magnetos and all ignition or lighting system units. Considers the systems of cars already in use as well as those that are to come in 1917. A book every one needs. Nothing has been omitted, no details have been slighted. A book you cannot afford to be without.

Nearly 500 pages. 297 Specially Made Engravings. 1917 Edition. Price, $1.50.

Automobile Repairing Made Easy

By Victor W. Pagé, M.E.

A thoroughly practical book containing complete directions for making repairs to all parts of the motor car mechanism. Written in a thorough but non-technical manner. Will be found of special value to garage-men, chauffeurs and automobile mechanics; it also contains a mass of general information that will be of equal value to the motorist who takes care of his own car.

This book contains special instructions on electric starting, lighting and ignition systems. Tire repairing and rebuilding. Autogenous welding. Brazing and soldering. Heat treatment of steel. Latest timing practice. Eight and twelve-cylinder motors, etc., etc. A guide to greater mechanical efficiency for all repairmen.

1,000 Specially Made Engravings on 500 Plates. 1,056 Pages (5½ x 8), 11 Folding Plates. 1917 Edition. Price, $3.00.

How to Run an Automobile

By Victor W. Pagé, M.S.A.E.

This treatise gives concise instructions for starting and running all makes of gasoline automobiles, how to care for them, and gives distinctive features of control. Describes every step for shifting gears, controlling engines, etc. Thoroughly illustrated.

Price, $1.00 net.

The Modern Gasoline Automobile

By Victor W. Pagé.

The most complete treatise on the gasoline automobile ever issued. Written in simple language by a recognized authority familiar with every branch of the automobile industry. Free from technical terms. Everything is explained so simply that anyone of ordinary intelligence may gain a comprehensive knowledge of the gasoline automobile. The information is up to date and includes, in addition to an exposition of principles of construction and description of all types of automobiles and their components, valuable money-saving hints on the care and operation of motor cars propelled by internal combustion engines.

The book tells you just what to do, how and when to do it. Nothing has been omitted, no detail has been slighted.

1000 Pages. 1000 Illustrations. 12 Folding Plates. 1918 Edition. Price $3.00.

Storage Batteries Simplified

By Victor W. Pagé, M.E.



A comprehensive treatise devoted entirely to secondary batteries and their maintenance, repair and use.

This is the most up-to-date book on this subject. Describes fully the Exide, Edison, Gould, Willard, U. S. L. and other storage battery forms in the types best suited for automobile, stationary and marine work. Nothing of importance has been omitted that the reader should know about the practical operation and care of storage batteries. No details have been slighted. The instructions for charging and care have been made as simple as possible. 250 pages. Very fully illustrated.

Price, $1.50.

The Automobilist's Pocket Companion and Expense Record

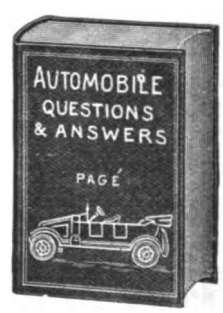
Arranged By Victor W. Pagé, M.S.A.E.

This book is not only valuable as a convenient cost record, but contains much information of value to motorists. Includes a condensed digest of auto laws of all States, a lubrication schedule, hints for care of storage battery and care of tires, location of road troubles in all parts of the car, anti-freezing solutions, horse-power table, driving hints and many useful tables and recipes of interest to all motorists. Not a technical book in any sense of the word, but a collection of practical facts in simple language for the everyday motorist.

Convenient pocket size, handsomely bound in limp leatherette cover. Price, $1.00.

Automobile Questions and Answers

By Victor W. Pagé.



This practical treatise consists of a series of thirty-seven lessons covering well over 2,000 questions and their answers on the automobile, its construction, operation and repair. The subject matter is absolutely correct and explained in simple language. If you can't answer all of the following questions you need this work. The answers to these and 2,000 more are to be found in its pages.

Give the names of all important parts of an automobile and describe their functions. Describe action of latest types of kerosene carburetors. What is the difference between a "double" ignition system and a "dual" ignition system? Name parts of an induction coil. How are valves timed? What is an electric motor starter, and how does it work? What are advantages of worm drive gearing? Name all important types of ball and roller bearings, etc., etc.

650 Pages. 350 Illustrations and Plates. 1917 Edition. Price, $1.50.

Location of Gasoline Engine Troubles Made Easy

This chart shows clearly all parts of a typical four-cylinder gasoline engine of the four-cycle type. It outlines distinctly all parts liable to give trouble and also details the derangements apt to interfere with smooth engine operation.

It simplifies location of all engine troubles, and while it will prove invaluable to the novice, it can be used to advantage by the more expert. This sectional view of engine is a complete review of all motor troubles. It is prepared by a practical motorist for all who motor. More information for the money than ever before offered. No details omitted. Size 25 x 38 inches. Securely mailed on receipt of

Price 25 cents.

Any of these books sent prepaid on receipt of price, or a special circular of all our Automobile Books and Charts sent on request.

U. P. C. BOOK CO.

239 West 39th St., N. Y.

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ATWATER KENT
SCIENTIFIC IGNITION

How You Can Help in the "Don't Waste Gasoline" Campaign

in cold weather—this will insure better vaporization.

10. See that spark is timed correctly with engine and drive with spark fully advanced—a late spark increases gas consumption.

11. **Have a hot spark, keep plugs clean and spark points properly adjusted.**

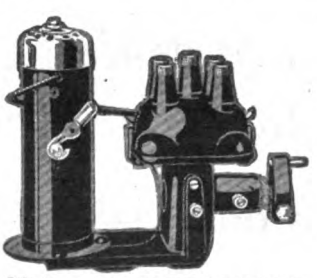
From "15 Ways to Save Gasoline," prepared by the N. A. C. C.

"The one certain way to insure a sufficient supply of fuel for war needs," says General Manager Reeves, of the National Automobile Chamber of Commerce, "is to eliminate waste."

Atwater Kent Scientific Ignition produces a big, hot uniform spark at all motor speeds. Combustion is thereby improved, making it possible to operate on a leaner mixture, and to secure greater mileage from every gallon of gas.

You, as a dealer, can co-operate in this "Don't Waste Gasoline" campaign by recommending and selling Atwater Kent Ignition to your trade.

Thirty manufacturers of automobiles, trucks and tractors have adopted Atwater Kent Ignition as standard equipment. Be the authorized Atwater Kent dealer in your locality.



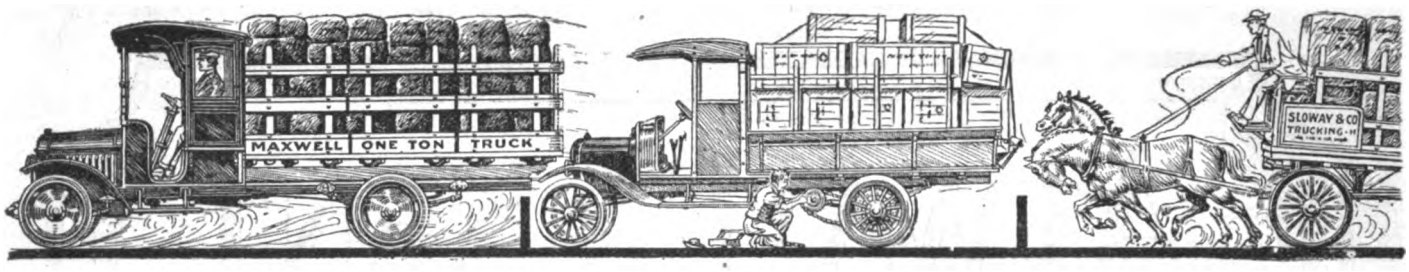
Type CC for magneto replacement

There will be over 400,000 Atwater Kent systems in use during 1917-18. There is an Atwater Kent Ignition system for every make of car, electrically equipped or not.

ATWATER KENT MFG. WORKS *Philadelphia*

WRITE FOR INFORMATION TO 4940 STENTON AVENUE

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Speedy—Efficient—Economical | Makeshift—Unreliable—Costly | Slow—Uncertain—Costly

Reach Quick for This Sudden Flood of Truck Money

Don't stand there, waiting another week, and watching this big profit opportunity roll past you.

They must have trucks. They are all waking up to it at one time. The whole trend of up-to-the-minute transportation science is sending business towards the dealer who has Maxwell One-Ton, Worm-Drive Trucks.

The one-ton unit is now recognized as the key to the solution of the problem the country is facing. The traffic experts' standards of 1916 are not the standards of today.

Country — town — agricultural — mercantile — industrial — bus — express — long haul — short haul — few stops or straight run — steady volume or fluctuating volume of traffic — no matter what the work of your district is, no matter how many different forms of traffic are being handled, the one-ton truck is the key to the problems that people in your district will have to cope with.

And of all the one-ton trucks the one that gives maximum service, at minimum cost, is the Maxwell Truck with the time-tried Maxwell engine and the same durable, reliable type of worm drive as in trucks costing $5,000.

The Maxwell is pure truck design and truck construction in every detail—steels of automobile quality, but not a transformed automobile. It carries a ton and at the same time can haul three tons.

Write for our offer to dealers while these trucks of maximum efficiency are still procurable.

Maxwell Motor Sales Corporation
Detroit **Michigan**

MAXWELL ONE-TON WORM-DRIVE TRUCK

MOST MILES PER GALLON - MOST MILES ON TIRES

When writing advertisers please mention Motor World—It identifies you

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Champion Toledo

Dependable Spark Plugs



1918 Dealer's Window Display

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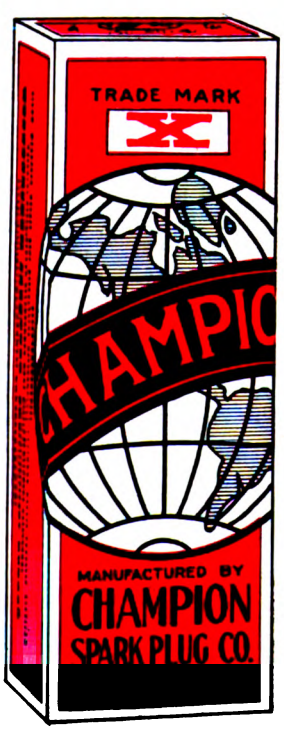
Champion Toledo

Dependable Spark Plugs

The Conservation of Retail Profits in Spark Plugs

Because the Retailer's business is on a smaller scale than the Jobber's he is more apt to overlook those factors which dissipate his profits.

In an unguarded moment the busy Retailer may thoughtlessly accumulate profitless stock.



Stock that moves slowly or stalls in the Retailer's shop dissipates the Retailer's profit just as it does the Jobber's.

The normal sale of Champion-Toledo Dependable Spark Plugs will yield the Retailer more spark-plug profit than he can possibly exact from even the forced sale of other spark plugs.

Likewise, and for the same reason, a little selling effort behind Champions yields bigger results than a like amount of effort behind any other plug.

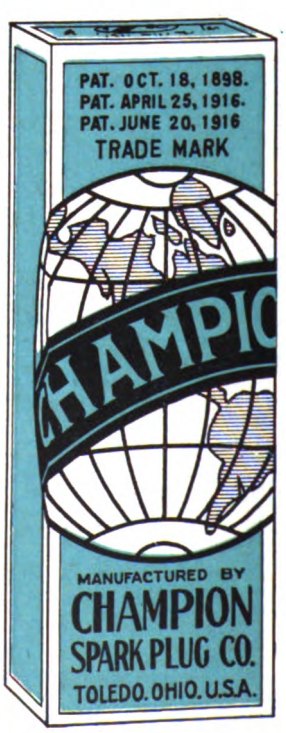
And that reason?

It is the normal demand of an experienced and appreciative buying public.

That normal public demand for Champions is greater by far than for all other spark plugs combined.

And it is a dependable demand because it is based on the superior efficiency and durability of Champions demonstrated and proven by the motor car owner's experience.

If you as a Retailer doubt the greater volume of Champion business, note the prominence and space given to Champions in all Jobbers' catalogues and ask yourself why.



Champion Spark Plug Co., Toledo, Ohio

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Champion Toledo

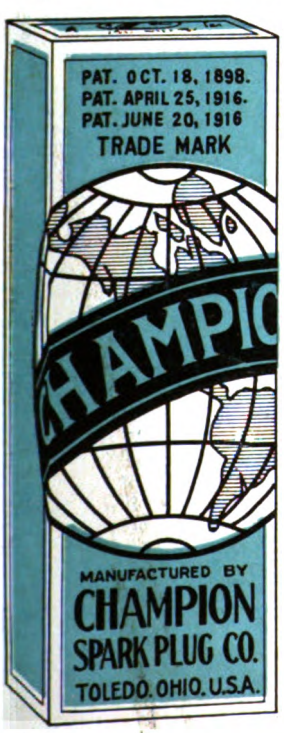
Dependable Spark Plugs

How Jobbers Conserve Their Spark Plug Profits

Two things are apt to dissipate the jobber's profit,

—slow selling goods that tie up capital until carrying cost eats into profit,

—goods that move not at all until profit is sacrificed by a cut in price or in costly special selling effort.



Jobbing profits are in those articles that sell steadily in large volume.

From such articles the jobber may by skillful buying extract the last penny of possible profit.

One of the best examples of profitable jobbing merchandise is the Champion-Toledo Dependable Spark Plug.

Champions have a sales impetus which makes them "flow" through the jobbing channels in a big steady stream.

They pause in his stock room barely long enough to be checked in.

And in paying quickly they pay big.

So those jobbers who carefully conserve their profits, stock Champions liberally so as never to miss profits through inability to make prompt and full delivery.

And they restock fully and promptly to keep the stream flowing in largest possible volume—yielding its steady toll of maximum profit in ever increasing amounts.

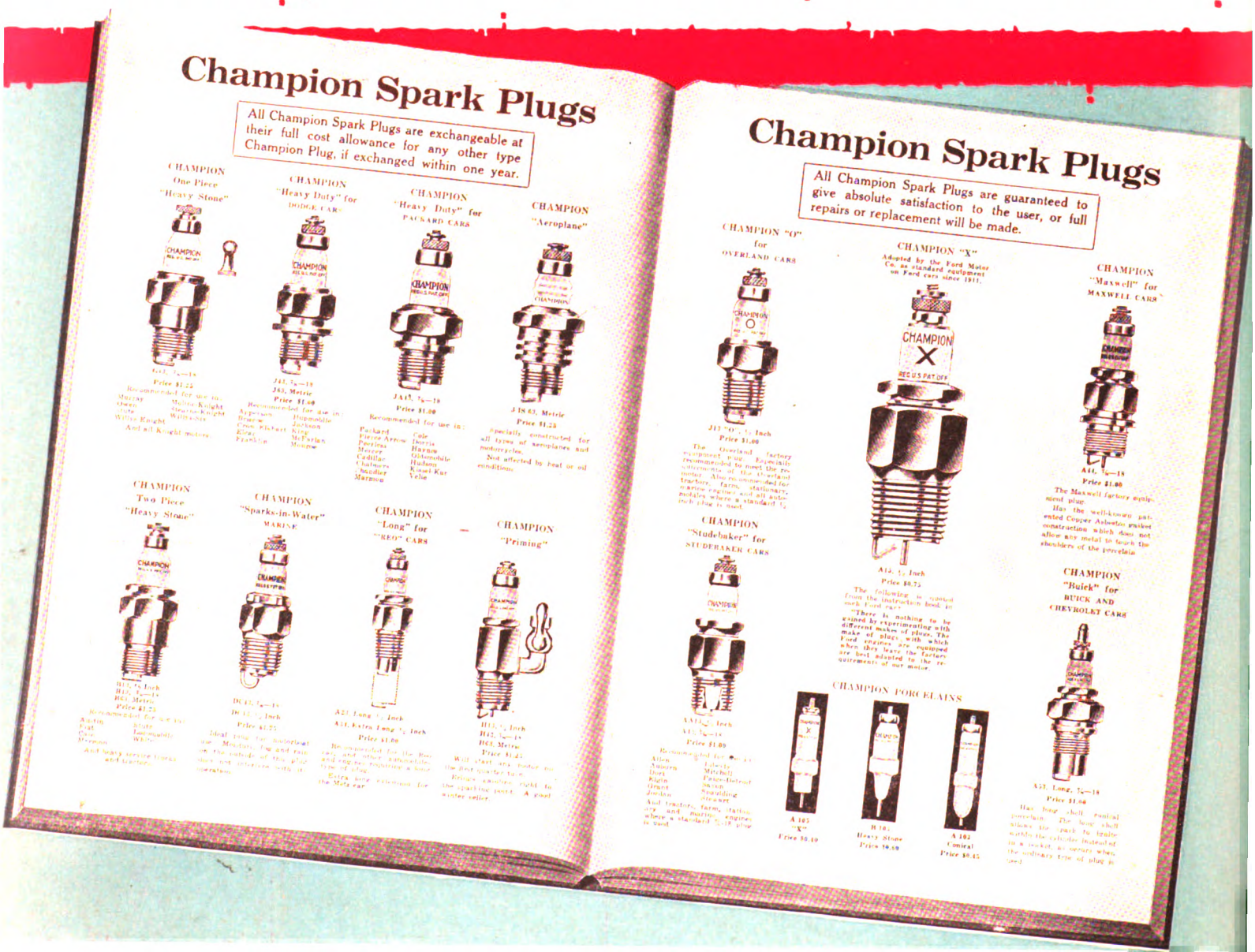


Champion Spark Plug Co., Toledo, Ohio

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Champion Toledo

Dependable Spark Plugs



1918 Jobber's Catalogue Pages

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"Defies Time and the Elements"

CHASE DREDNAUT Motor Topping

DURABILITY is the essential quality often looked for in top material but rarely found. When Drednaut is used, an unequalled, weather-resisting, long-wearing top shields you.

More "Chase" material is used on vehicles today than any other brand.

DREDNAUT MOTOR TOPPING often outlasts the car itself—it is a positively *weatherproof*, non-cracking, non-blistering material that can be easily handled and cleaned.

APPEARANCE is a big factor in top material. A top of Drednaut adds beauty to any car—the beautiful, rich-appearing surface is not impaired by folding or the elements.

Use DREDNAUT and *be protected*, both by a splendid top and the "CHASE" name.

DREDNAUT MOTOR TOPPING retains its smart appearance after years of the severest use—it is a *genuine* product, that has given complete satisfaction the past twenty years.

OTHER PRODUCTS OF OUR MILLS:
Plush, Wool and Cloth Robes,
Mohair Velvet Upholstery,
Cinch Curtain Fasteners

L. C. CHASE & CO., BOSTON
NEW YORK DETROIT CHICAGO
Leaders in Manufacturing Since 1847

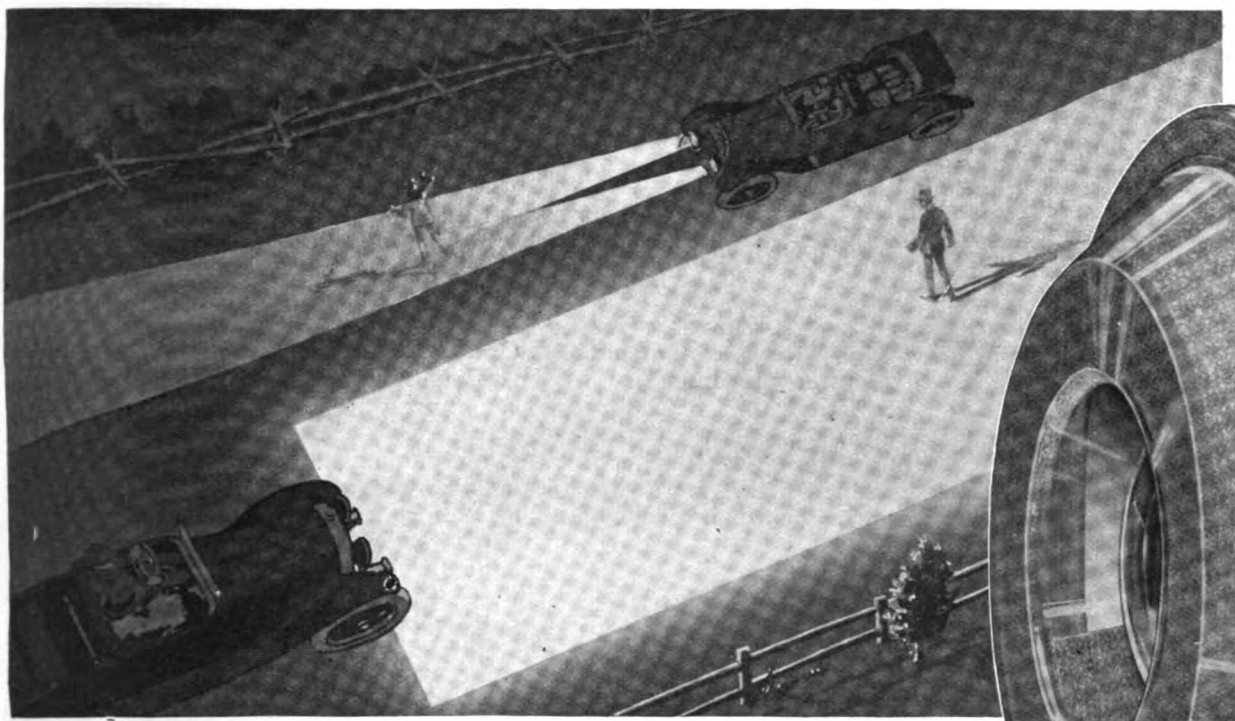
OTHER PRODUCTS OF OUR MILLS
Leatherwove Upholstery,
Wool and Cloth Steamer Rugs,
Wexford Motor Cloths

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THE greatest good you can possibly get out of the National Automobile Show at New York next week is a clear understanding of the *new measure of comfort* embodied in the new Hupmobile.

The new Hupmobile—*The Comfort Car*—has actually given the word Comfort a meaning and a significance it has *never* had before.

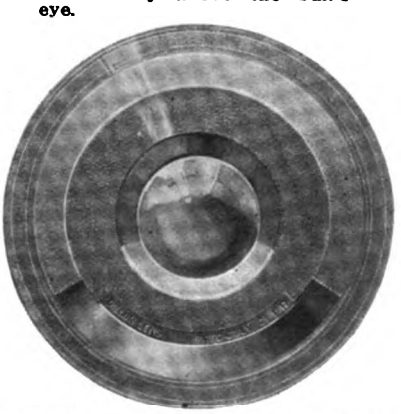
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A Square Path of Light—Twice the Lighted Area
A Safe, Glareless Light for over 500 feet ahead and 25 feet on either side



THERE are three vital features of Dillon design, each of which contributes to the ultimate in light distribution. The mottled glass diffuses the light, while the clearer portion below illuminates the road at the side and front—hence a square path of light and, therefore, twice the lighted area. The bull's-eye in the center, a distinguishing feature of the Dillon Multi-Vision Lens, concentrates and magnifies the central beam of light below eye-level. These otherwise dazzling rays are scientifically neutralized, diffused and deflected from the clear glass immediately above the bull's-eye.



What the Dillon Means to You as a Dealer

As a dealer you are interested in turn-over. The goods you buy represent an investment of capital. The quicker you release that capital—the sooner the goods are moved—the more successful you are as a dealer.

Consequently, you want only articles that move quickly, that require little effort to sell and only a minimum investment.

The Dillon Multi-Vision Lens is in that class. No lens possesses the innumerable selling points of the Dillon. No lens can claim, no lens can do, what the Dillon does.

The lens, the price, the demand, the advertising—everything—is to your advantage.

All sizes, from the smallest to the largest, sell for the same low price, $3.50 a pair. The Dillon advertising campaign is extensive and its plan unique. Every advertisement is made YOUR advertisement by Otto Deeler, a new trade character representing the auto dealer.

Get in touch with us—let us give you complete information about the Dillon Multi-Vision Lens and the selling co-operation offered

NATIONAL DISTRIBUTING BUREAU, INC.

Exclusive Distributors for the Dillon Lens

240 Oliver Building — **Pittsburgh Penn'a**

Dillon Lenses are manufactured by the
DILLON LENS & MFG. CO., Wheeling, W. Va.

DILLON MULTI VISION LENS

Digitized by Google

Notice to every car manufacturer on the face of the globe

TO every car manufacturer we announce the perfection of the ***Cassco Pump***—a pump that requires no attention after it is installed, yet gives 100% service for the lifetime of the car.

You know full well that the average motorist rarely thinks of giving his tire pump any attention. He forgets that the tire pump is a little machine in itself which requires oil and grease just as much as the motor.

The safe and sure motorist will give his pump a little oil every time he lubricates the motor, with the result that he soon has his pump flooded with oil. When he has occasion to pump the tires, he will pump a stream of oil instead of good, clean, cool air, and so his tires are absolutely ruined, for oil is a deadly enemy to rubber.

Then, again, we have the motorist who pays attention to only the motor itself and forgets that his pump also needs to be fed. As a result, his pump is soon out of commission, and when he attempts to use it, he literally tears it all to pieces.

Our engineers in designing the ***Cassco*** have made a pump that will eliminate all trouble, work and annoyance for the motorist. If the ***Cassco*** is installed on the transmission, the motorist can entirely forget it is there until he has occasion to use it for pumping his tires. If installed on the motor itself, he need never touch it except when having the car overhauled. He can feel sure that his pump will always be lubricated. Furthermore, a new type of skirt which absolutely prevents the oil from getting into the tube, assures him that oil will never be pumped into his tires.



Needless to say, such a distinct step forward in the designing of engine driven tire pumps will be exhibited at the New York and Chicago Automobile Shows. Booths D102 to D106 will be headquarters for the ***Cassco*** at New York; booths 165 to 173, inclusive, in the Coliseum at Chicago.

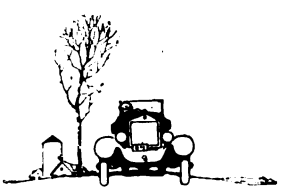
It will pay every car manufacturer in America to get a ***Cassco*** demonstration at either one of the shows, and we earnestly request that you let us supply you with full details about the ***Cassco.***

SALES DEPARTMENT

Edward A. Cassidy Co., Inc.
Madison Avenue & Fortieth St.
NEW YORK

MANUFACTURERS

West Side Foundry Company
TROY, N. Y.



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SE-MENT-OL

AUTOMOBILE RADIATOR CEMENT

"Finds the Leak and Fixes It"

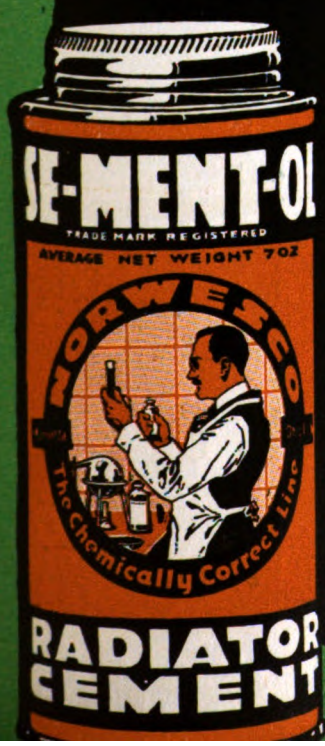
INTRODUCING

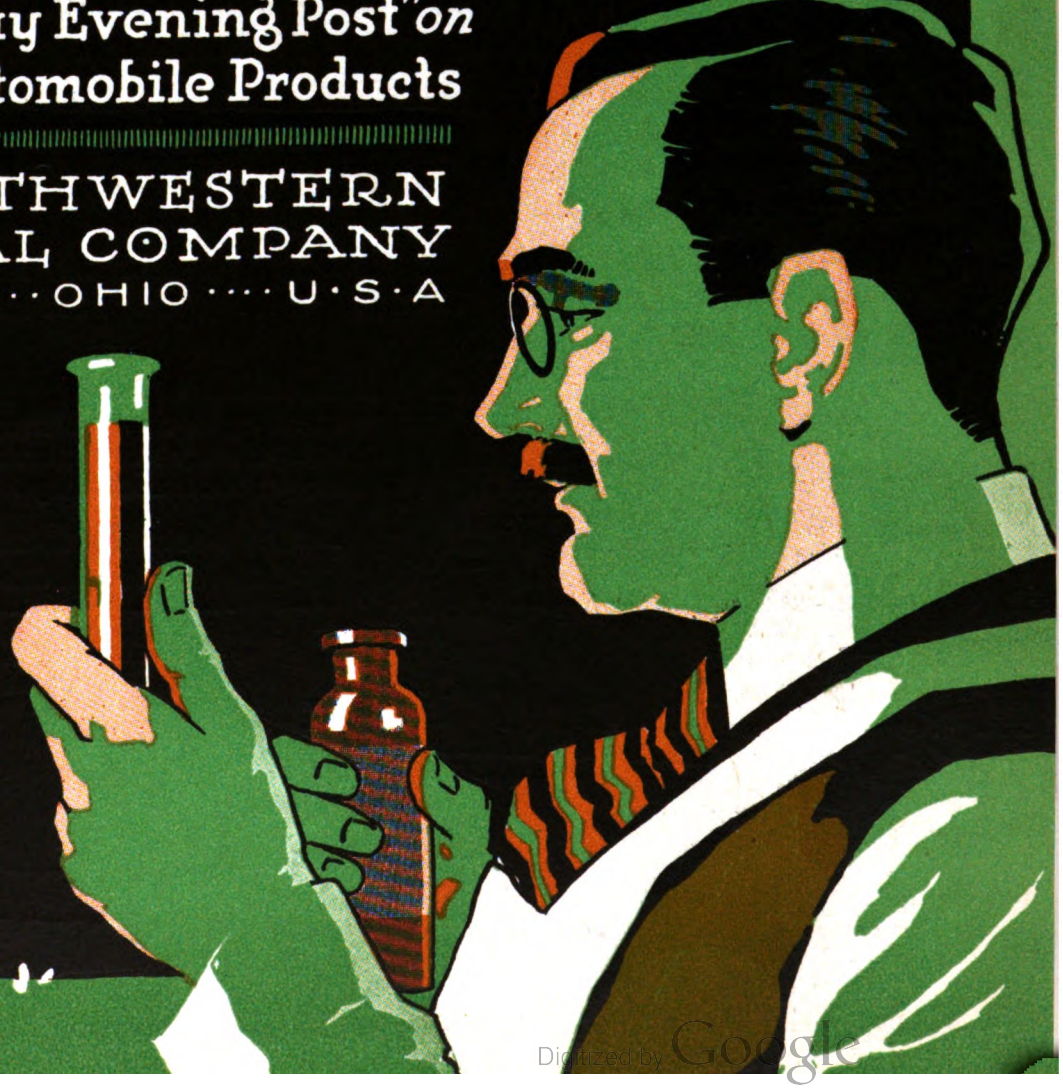
NORWESCO

The CHEMICALLY CORRECT LINE

This Figure will identify *the* NORWESCO LINE *in the* Greatest Advertising Campaign ever conducted *in* "*The* Saturday Evening Post" *on* Chemical Automobile Products

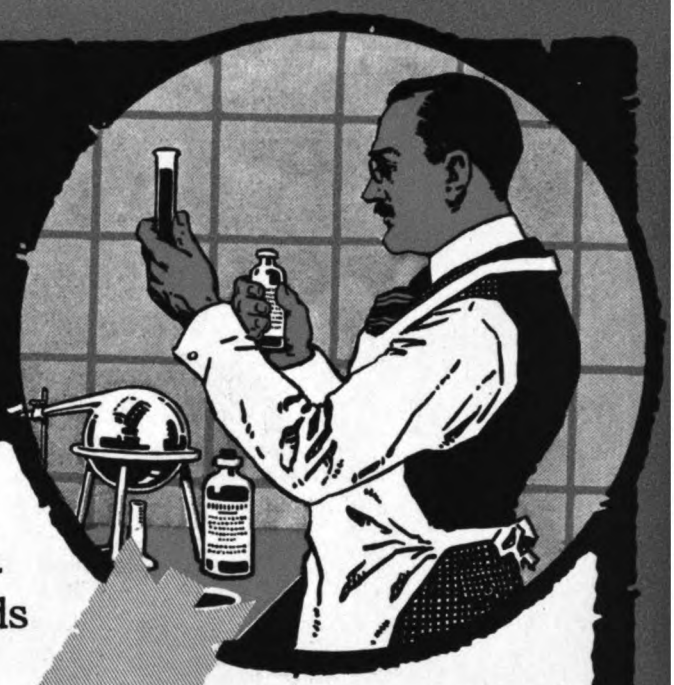
THE NORTHWESTERN CHEMICAL COMPANY
MARIETTA ···· OHIO ···· U·S·A





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What *the* Norwesco Laboratories Have Done For *the* Garage Man



FROM the Norwesco laboratories comes a line of Chemical Automobile Utilities that places in your hands a great sales opportunity.

You, as a progressive merchant and probably a car owner as well, realize the salability of Norwesco products, which have proved their value to a million motorists, and are backed this year by the greatest advertising drive ever launched in the Saturday Evening Post on chemical automobile utilities.

You will have a tighter hold on ***your motoring trade*** when you handle

NORWESCO

The Chemically Correct Line

Probably you have long known the line through SE-MENT-OL, the radiator cement that has revolutionized the methods of mending leaky radiators.

Motorists everywhere have been quick to adopt SE-MENT-OL because it finds and fixes the leak, with a minimum of time—and does not lay up the car. And garage men have also been quick to adopt SE-MENT-OL because it sells readily—and ***makes good.***

The same holds true of each product in the Norwesco line. And the reason is that each one is "Chemically Correct"—compounded after a formula which chemistry says is right.



Mail the coupon below for complete information regarding our introductory assortment and display stand featuring Norwesco products nationally advertised.

The Northwestern Chemical Co.,
412 State St., Marietta, Ohio, U. S. A.

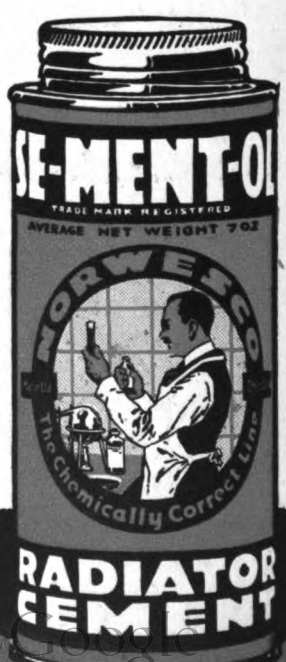
The Northwestern Chemical Co.
412 State St., Marietta, Ohio, U. S. A.

Please send me complete information regarding your Introductory Offer and Display Stand.

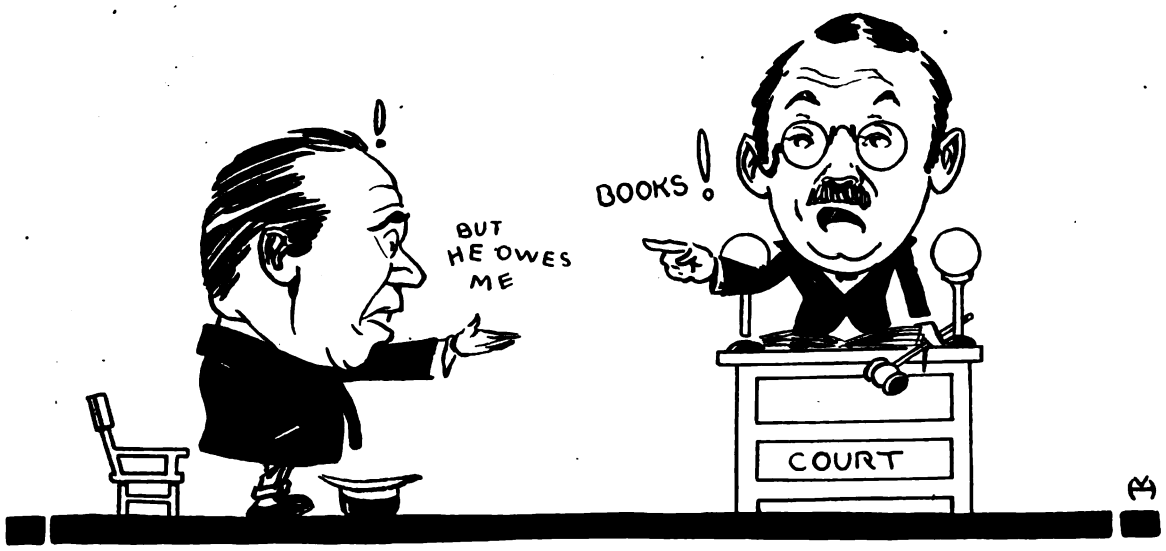
Name .....

Address .....

.....



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When You Are Obliged to Go to Court for Your Money

"Where are your books of original entry?" asks the Judge.

It's a little late then to tell His Honor that you are no bookkeeper.

There's a cloud upon your claim at once—however just. Our memories are treacherous things.

Keep your accounts up to date and present them promptly.

All that you do—your reason for being in business—is based upon getting your money when it is due.

Business men expect business methods. They don't want accounts held back any more than they like premature duns.

When you open a charge account do it upon an understood basis.

Most disputed accounts were moss-covered before they got to court.

Short Accounts Make Long Friendships

Send for your copy of our Booklet—by an expert—on "How to Run a Garage."
Manufacturers, Jobbers and their Salesmen are anxious to co-operate with you. Ask them for ideas.

National Association of Automobile Accessory Jobbers

WM. WEBSTER, Commissioner

CITY HALL SQUARE BLDG. CHICAGO, ILL.

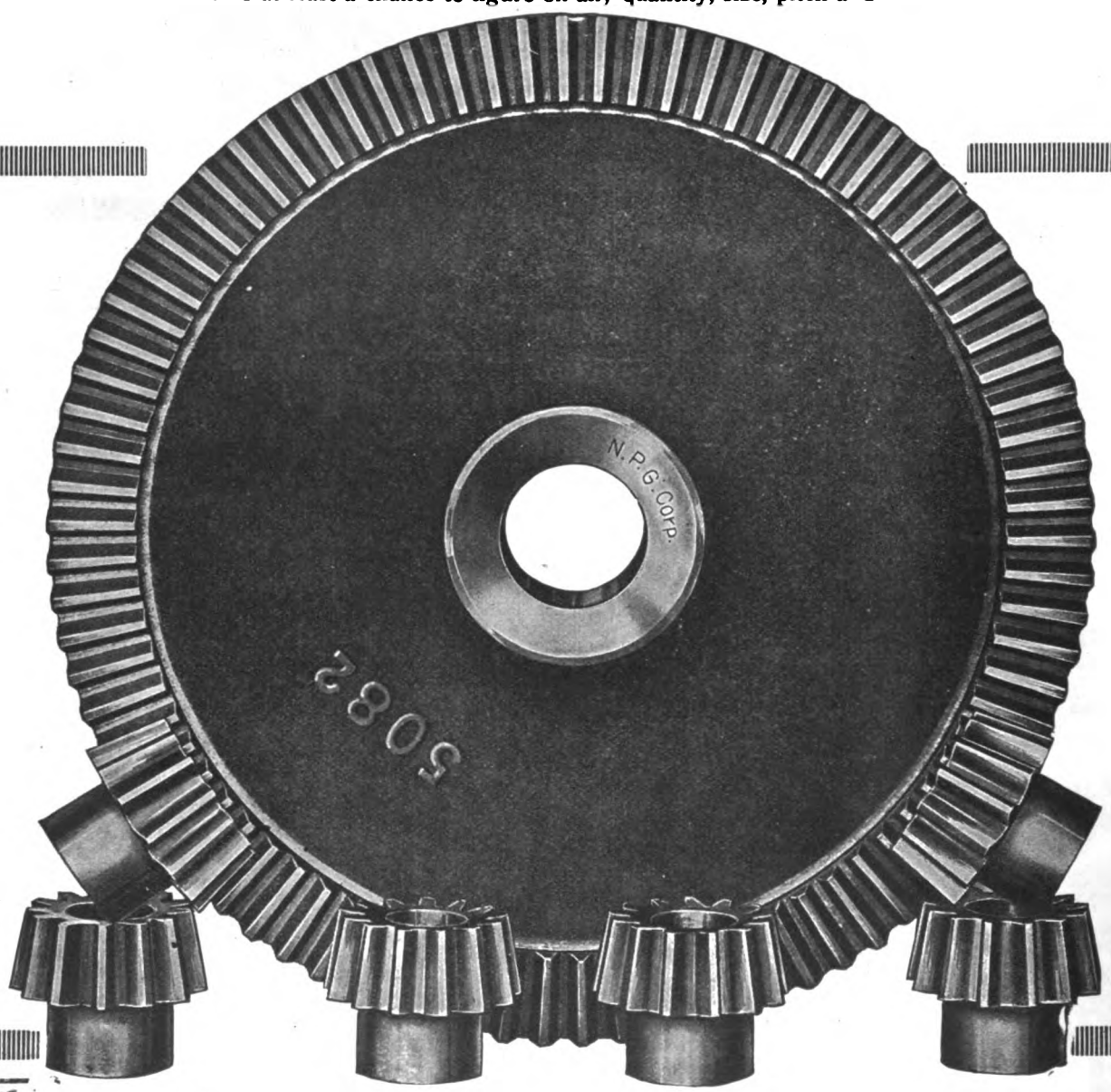
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Try Us on Bevel Gears

We've specialized on bevel gears. Our very large capacity and the fact that hundreds of thousands of our bevels are standard parts on leading automobiles, machine tools and other machinery places us in a peculiarly advantageous position to fill your requirements.

Our equipment provides for generating the correct shape of tooth which assures the highest quality of workmanhip and for a rapidity of production which makes our prices attractive.

Give us at least a chance to figure on any quantity, size, pitch and finish.



N.P.R.H. REG. U.S. PAT. OFF.

NEW PROCESS GEAR CORPORATION

SYRACUSE, N.Y.

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Dearborn Two-Ton Unit attached to Packard Chassis



Dearborn Two-Ton Unit attached to Buick Chassis

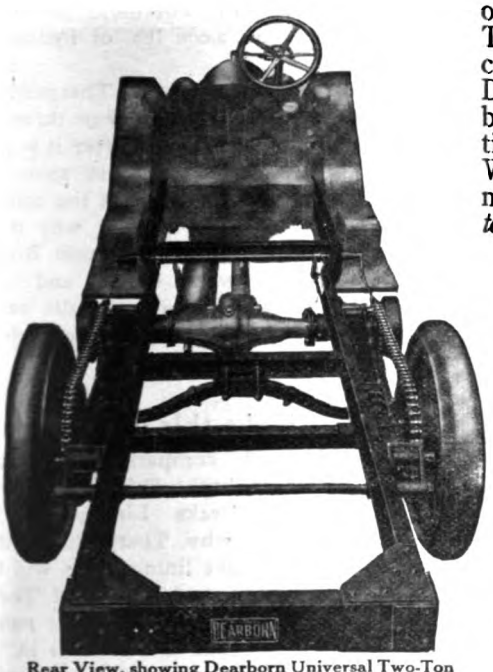


Dearborn Two-Ton Unit attached to Hudson Chassis

DEARBORN TRUCK UNITS can be attached to any make of car

Dearborn One and Two-Ton Truck Units have proven their strength, efficiency and practicability on all makes of cars. Thousands of these Units have been in use during the past year under every possible condition of the most trying service. In every instance they have given exceptional satisfaction.

Dearborn Universal Truck Units are manufactured in our own plant—by a sound and successful company whose reputation for honest quality has never been questioned.



Rear View, showing Dearborn Universal Two-Ton Truck Unit attached to Mitchell Chassis

Now is the time for dealers to take on this exclusive line of Truck Units. The demand for trucks during the coming season will be enormous. Dearborn Units will have the call because of their superior construction and all-'round dependability. With them you can convert any make of car. *You are not confined to the Ford.*

Do not fail to see the Dearborn Truck Units while at the New York and Chicago Shows. See for yourself "how and why" the Dearborn is superior, or write at once for full particulars and specifications.

DEARBORN TRUCK CO.
1260-74 S. Campbell Ave.
Chicago, Ill.

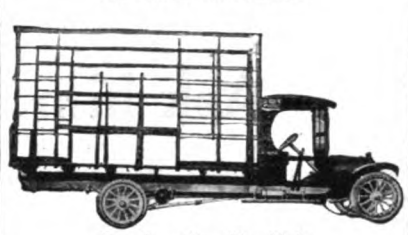
$350 and a Ford Car makes a Dearborn One-Ton Truck.
$400 and Any Car makes a Dearborn Universal 1-Ton Truck.
$450 and a Ford Car makes a Dearborn Two-Ton Truck.
$500 and Any Car makes a Dearborn Universal 2-Ton Truck.



Dearborn One-Ton Unit attached to Overland Chassis



Dearborn Two-Ton Unit attached to Cole Chassis



Dearborn Two Ton Unit attached to Buick Chassis



Dearborn Two-Ton Unit attached to Glide Chassis



Dearborn Two-Ton Unit attached to Chalmers Chassis



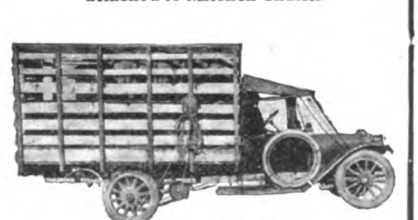
Dearborn Two-Ton Unit attached to Mitchell Chassis



Dearborn Two-Ton Unit attached to Cadillac Chassis

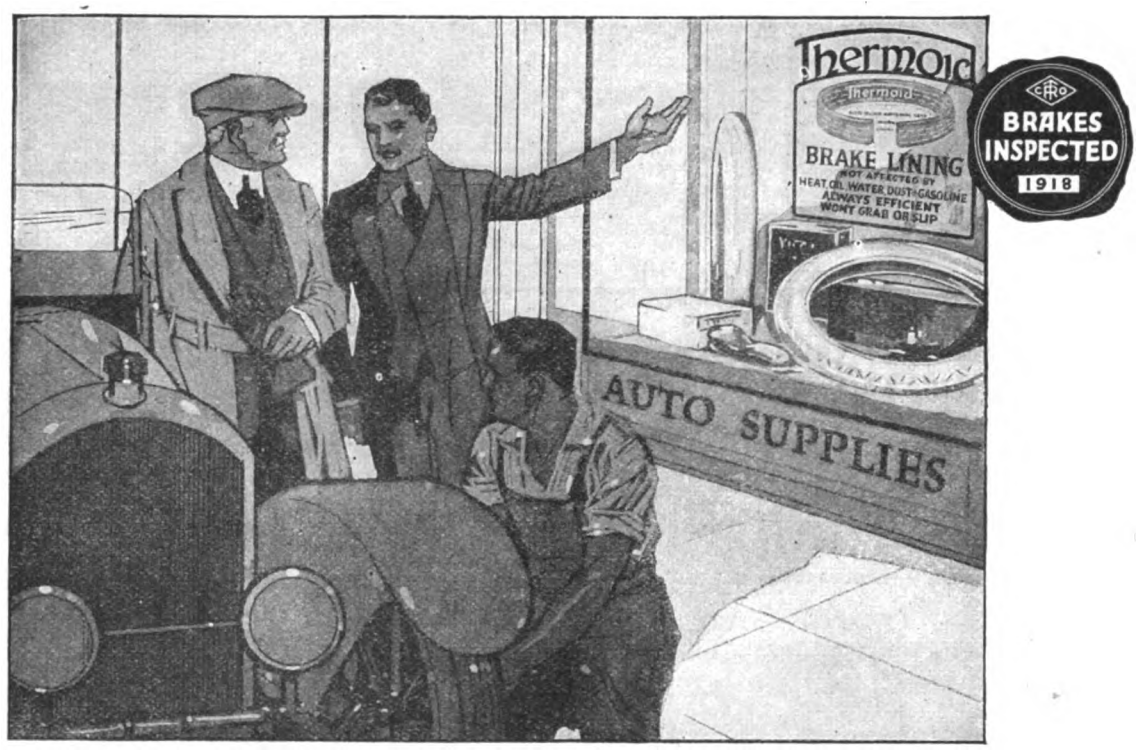


Dearborn One-Ton Unit attached to Maxwell Chassis



Dearborn One-Ton Unit attached to Buick Chassis

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Ask him about his brakes—*The safety of his car depends on the brakes*

When your customer stops for "gas" or comes in for supplies, ask him about his brake lining. Because it is hidden out of sight most car-owners do not give it the attention it deserves.

The safety of the car and every one in it depends on the efficiency of the brakes. Call this to his attention and you are sure to increase your volume of relining business.

When you reline his brakes put on brake lining that will make him a satisfied customer. Thermoid Brake Lining makes satisfied customers for three reasons:

More material, greater service

There is over 40% more material and 60% more labor used in the manufacture of Thermoid Brake Lining than in any woven brake lining. This abundance of material and labor means longest wear, greatest safety and lowest final cost.

Grapnalized

Thermoid Brake Lining is Grapnalized, an exclusive process which resists oil, gasoline and moisture. Under ordinary conditions of service Thermoid is impervious to the action of water, gasoline and oil. Moisture of any kind causes ordinary brake lining to swell, making it grab or slip.

Thermoid Rubber Company

Factory and Main Office: Trenton, N. J.

Branches: New York, Chicago, San Francisco, Indianapolis, Detroit, Los Angeles, Philadelphia, Pittsburgh, Boston

Canadian Distributors
Canadian Fairbanks, Morse Company, Limited, Montreal
Branches in all principal Canadian cities

Brake inspection movement

Within the past few weeks a movement has been started to promote the regular inspection of brake equipment by every motorist. This movement is endorsed by leading individuals and organizations in the automobile industry throughout the country.

The first object of the movement is to have all brakes inspected before the touring season opens. This will decrease the accidents due to faulty or improperly adjusted brakes.

This movement merits your support because it will increase your brake lining business.

A larger campaign than ever before will run throughout the year to convince motorists of the superiority of Thermoid Brake Lining. When they ask for Thermoid be prepared. Your jobber will supply you.

Ideal surface, uniform wear

Every inch of Thermoid is compressed under 2,000 lbs. of hydraulic pressure.

Because of this process Thermoid is uniformly hard all the way through. It cannot squeeze down after it is applied. There are no soft spots to wear out quickly and cause the brakes to grab or slip. That is why it is 100% brake lining. Thermoid Brake Lining will wear better and last longer because it is hydraulic compressed. It is brake lining clear through.

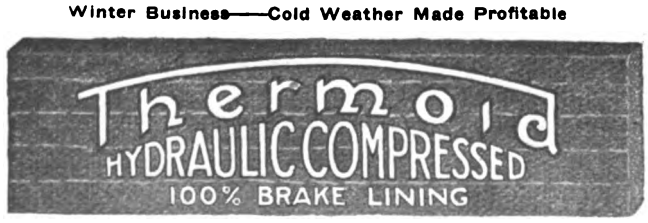
Make this comparison

Actual comparison between woven brake lining and Thermoid Brake Lining quickly shows why Thermoid is the safe brake lining. We will be glad to send sample of Thermoid. Simply put your name on a postal and send it in.

Our guarantee: Thermoid will make good or WE WILL.

Winter Business—Cold Weather Made Profitable







Makers of "Thermoid Tires" and "Thermoid Garden Hose"

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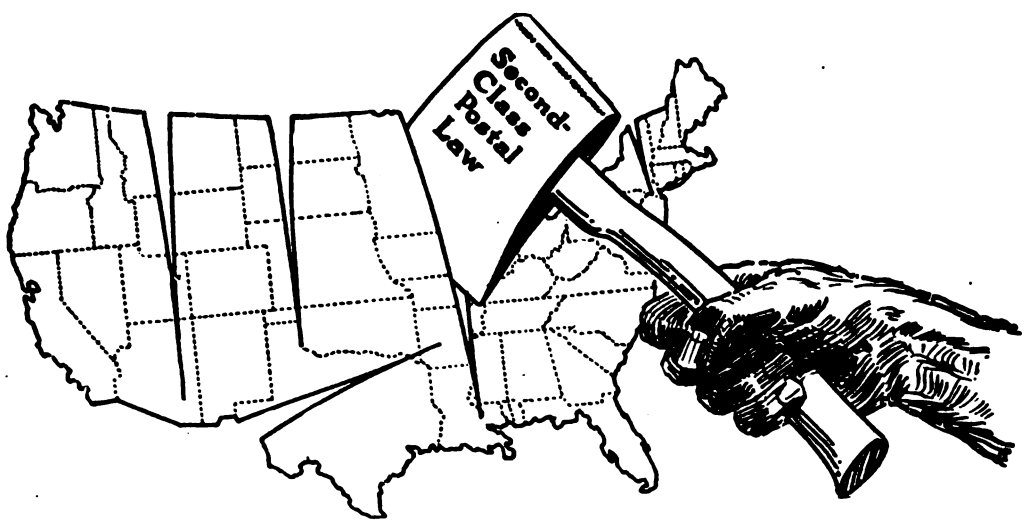
Automobile owners,
dealers, garagemen
and the trade in
general will not
complete their tour
of inspection of the
New York Automobile
Show without seeing
the Munger "Always
Tight" Piston Ring
--the real new
accessory of the
Show.

SPLITDORF ELECTRICAL CO.
Grand Central Palace
January 5-12

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America Must Be United

In this time of unprecedented national peril and world peril, America must be strong with the strength of unity—one nation. America must be bound together, as it is to-day, not so much by the machinery of Government, as by Ideas, held in common by all and fully exchanged, so that all the people throughout the country may understand and sympathize with one another. This is what has brought this great nation together and holds it together. This result has been accomplished primarily by the Press—particularly the weekly and monthly periodicals and business papers. These periodicals have not local or sectional bias; they go to all parts of America, and serve all parts alike; their great service is in helping to bring all sections close together into one great nation, through a common understanding.



America must not be split into a half dozen sections

Weak with the ILLS and EVILS of Sectionalism

But such a disastrous result is not only possible, but probable, unless the present law pertaining to second-class postage is repealed before it goes into effect. Postal legislation was enacted in the present Revenue Bill, which divides the country up into "zones" and progressively increases the average carrying charge upon newspapers and periodicals from 50 to 900 per cent.

These nation-binding publications are confronted with certain injury or destruction—which means loss to you personally, and loss to your country. It will destroy a large part of the periodicals. You will be deprived of the papers that have kept you informed on your country's problems, that have helped you in your work. Your children will lose the clean publications that have entertained and helped educate them. And eventually, such magazines as do survive will cost you much more.

NO INCREASE IS NECESSARY

Last Year the Postal Department Earned a Surplus of Nearly $10,000,000

The Post Office was never intended as a tax-gathering institution. It was basically designed to give service to the people—to all the people at the same rate. The Publishers are not trying to evade taxation. They will gladly accept any rate of tax upon their profits that may be levied. Most of them have gone on record as being willing to turn over to the Government their entire net profits for the period of the war. They already pay proportionately more taxes than most businesses, but this advertisement is not designed to parade selfish troubles, but to awaken your interest in the danger of permitting the destruction or obstruction of the channels of national intelligence.

This is the time of all times when America must be a united America—one nation strong with the strength of unity.

Let Your Influence Be Used To That End

THE ASSOCIATED BUSINESS PAPERS, Inc.

The International Organization of Trade, Technical and Class Publications

HEADQUARTERS, 220 WEST 42nd STREET, NEW YORK

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This advertisement will be in Saturday Evening Post, Jan. 12, and in other publications during the season.

When Steel meets Steel

Rub two highly polished bars of finest steel together. *Without* oil or with an inferior oil you will get *friction.*

With a quality oil at the places of contact, you could rub till doomsday, but the bars would never wear out. The oil literally spreads a film between the places of contact and keeps the metal separated.

A film of poor oil will break down and give friction its deadly chance.

This is why you should see to it that the lubricating oil in your motor is a quality oil, why you should use Havoline Oil.

HAVOLINE OIL

Reg. U. S. Pat. Off.

"It makes a difference"



Your motor, bearings, and cylinders must be protected by oil that does not break—no matter what the weather or speed at which you drive, no matter how hot the engine becomes. You can depend upon Havoline.

There is no practical way to test motor oil unless you use it in your automobile. No "free sample" will prove anything, except to the expert analytical chemist. But if the experience of a vast majority of the better class of car owners all over the country is worth anything, you can empty your crank-case today, clean it out with kerosene, buy a can of Havoline, fill up your motor, and start her running. You'll be surprised at the new lease of life your good old car will take running on Havoline. You may find it necessary to drive your present car next year, and the year after that. The oil you use is important to the life of your car, whether you continue to drive it yourself or want a good price for it when you sell it or trade it in.

Havoline Oil comes in sealed containers, your guarantee of uniform quality.

Havoline greases are compounded of Havoline Oil and pure, sweet tallow. Clean to handle and correct in body

Indian Refining Company, New York
Incorporated
Producers and Refiners of Petroleum

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Stan

WITH resources and facilities of a vast and varied nature we are equipped to serve the motor car industry in many ways, usual and unusual.

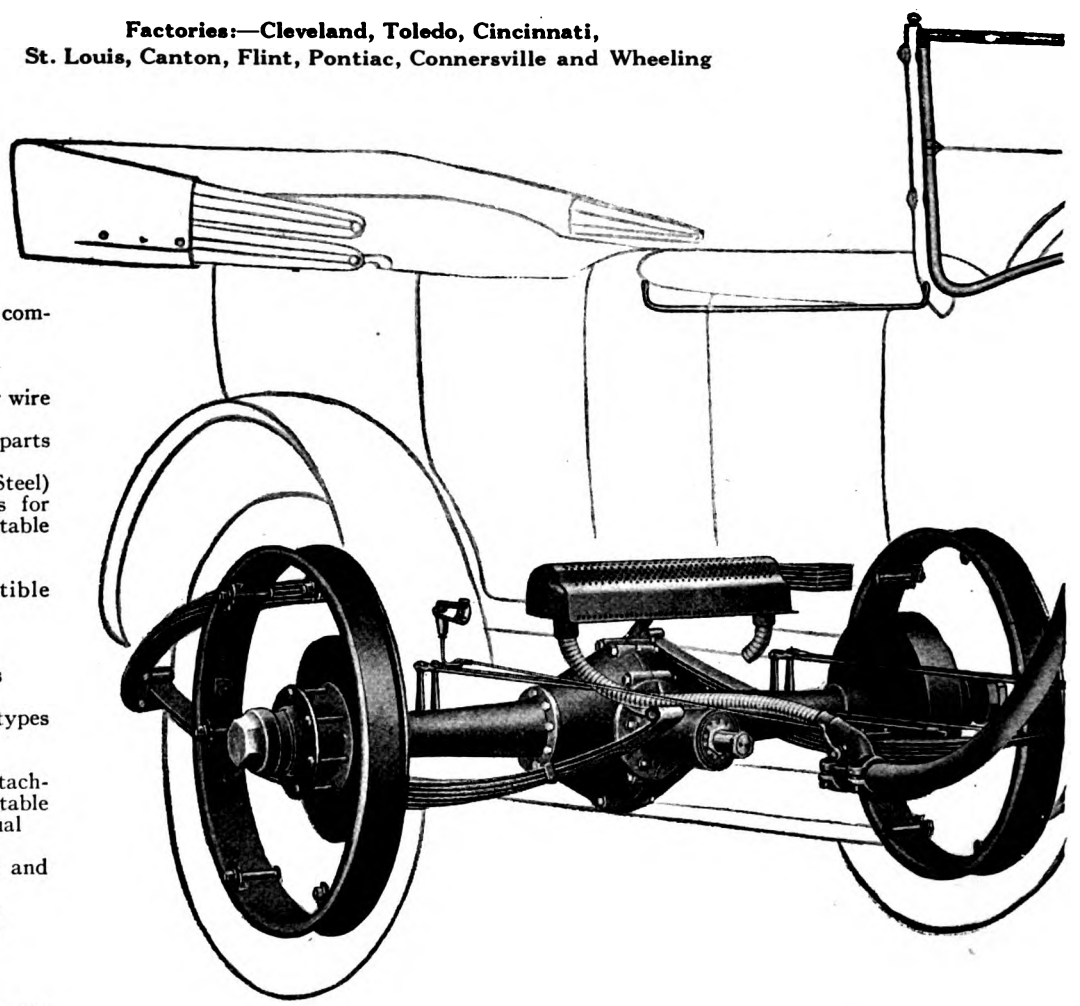
We seek to make your problems our problems and to evolve the solution thereof in a manner so distinctively successful as to establish mutually profitable relations that will prove enduring.

Tell us what problem you have that will put us to the test—now? Let us demonstrate our equipment to serve you.

Factories:—Cleveland, Toledo, Cincinnati, St. Louis, Canton, Flint, Pontiac, Connersville and Wheeling

For Motor Vehicles

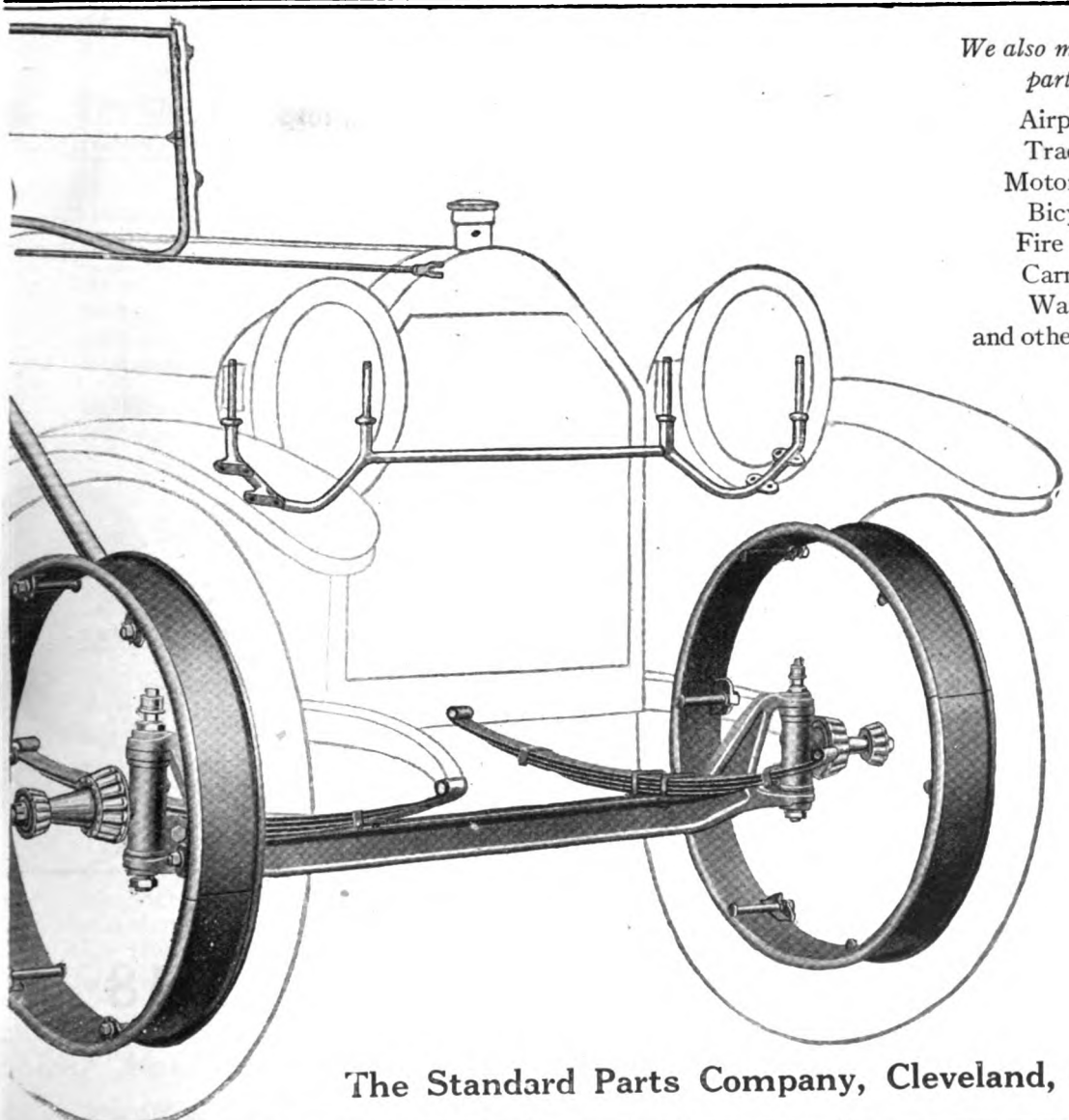
Axles
Axles (dead rear)
Bearings
Brake rod assemblies complete
Clincher rims
Cranks (starting)
Detachable rims for wire wheels, special
Electric welding of parts
Exhaust tubes
Felloe bands (S.A.E. Steel)
Flanges and fittings for attaching demountable rims
Formed Tubing
Forgings for convertible trucks
Heaters
Hubs
Ignition wiring tubes
Mast sleeves
Millimeter rims, all types
Oil tubes
Radiator rods
Rims—clincher, detachable and demountable for single and dual equipment
Starting gear rings and boxes
Straight steel tubing
Steering gear tubing
Springs (regular)
Springs (thin leaf)
Tail pipes
Tire bases in demountable and pressed on channels
Torsion tubes
Truss rods
Tubing (straight and formed)



The Standard Parts Company, Cleveland, Ohio

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dard parts



We also manufacture parts for

Airplanes
Tractors
Motorcycles
Bicycles
Fire Arms
Carriages
Wagons
and other vehicles

The Standard Parts Company, Cleveland, Ohio

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On January 26th

The Automobile Show Opens at CHICAGO

The interest this year is **intense**—the whole thing means more—to **all** of us—than ever before.

Are You Fully Alive to the Occasion?

The chance for achieving additional confidence and power in the trade, the chance to make a distinct, lasting impression was never more apparent, more certainly at the disposal of the advertiser than it is right now!

If it were **ever** necessary to advertise—

If it ever hurt **not** to advertise—

If there is anything important at all about being known, respected and believed in by the trade—

It is **more** necessary, **more** important **just at this time** than it ever was before.

Your Advertisement in the New York Show Issues is More Than Doubled in Value by Its Appearance in the Chicago Show Numbers

If it has **not** appeared in the New York Show Numbers **its appearance in the Chicago Show Numbers is positively demanded** by every principle of modern business efficiency.

These Big Show Numbers are Valuable to the Advertiser in Two Ways—

First, in reaching readers before they leave their respective homes to attend the national shows the advertiser getting his message to the reader at the last moment before he goes to the show to look over cars or accessories with an idea of adding to or changing his lines.

Second, the show numbers, containing a description of the principal exhibits, are interesting to the dealer who does not go to the shows, and are therefore read and examined with more than customary care. The advertising therein is especially valuable.

Get the Right Advertising Start for 1918

It Will Save You Time and Money Spent in Efforts to Catch Up Later On

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MOTOR AGE
JANUARY 24, 1918

The Chicago Show Issue of Motor Age will carry your advertising message to nearly 40,000 Owners, Jobbers and Dealers, throughout the country.

It goes into the small town, to the Automobile Owners and Dealers who are important factors in those communities.

It reaches these people at a time when they are more than ever interested in the very subjects you have to talk about.

It reaches them when they are looking for ideas and advice about the best things to buy, the best things to carry in stock for the coming season.

Their minds are in the formative stage. They are open to conviction, willing to read and consider your message, glad to get any constructive, helpful information.

If you have anything whatever to say to these people, as to why they should use or recommend your goods, say it here and now. You will find no better opportunity during the whole coming year.

AUTOMOTIVE INDUSTRIES
JANUARY 24, 1918

The Chicago Show Issue of Automotive Industries is of exceptional interest to Manufacturers, Engineers and Owners who are authorities on automotive matters.

It will contain the latest news of improvements, changes and additions, in car and engine construction, contemplated for the coming year.

Its readers constitute the highest class of prospects you can address, men whose opinion on cars, parts and accessories is accepted as final by thousands of automobile buyers.

Besides the Manufacturers, Engineers and Owners, who constantly read this publication, it numbers among its subscribers Dealers of the greatest importance both financially and commercially, large distributors and merchandisers.

All these men will see your advertisement in the Show Issue of *Automotive Industries,* and they will see it when they are *looking* for just such information as you have to give them.

It is an opportunity you cannot afford to neglect if the buying power and wide influence of these readers mean anything to you.

MOTOR WORLD
JANUARY 16, 1918

The Before Chicago Show Issue of Motor World will be read by the most progressive, wide-awake, hustling Dealers, Jobbers, Garagemen and Repairmen, in the whole industry.

The readers of this paper have proved in a hundred different ways their close attachment to, belief in, and dependence upon this publication, which caters to their necessities, informs them and advises them to an extent and after a fashion unequalled in this field.

They are the men who are going to distribute your goods during the coming year. They are the ones it is most important and necessary that you should inform and convince of the good selling features of these goods.

And now is the time of all times to do it. These men will rely on the Show Issue of Motor World to help them decide upon what to carry, what to push, what to stock up with for the coming season.

They are now in a receptive mood for your message. They will read it, consider it, and remember it.

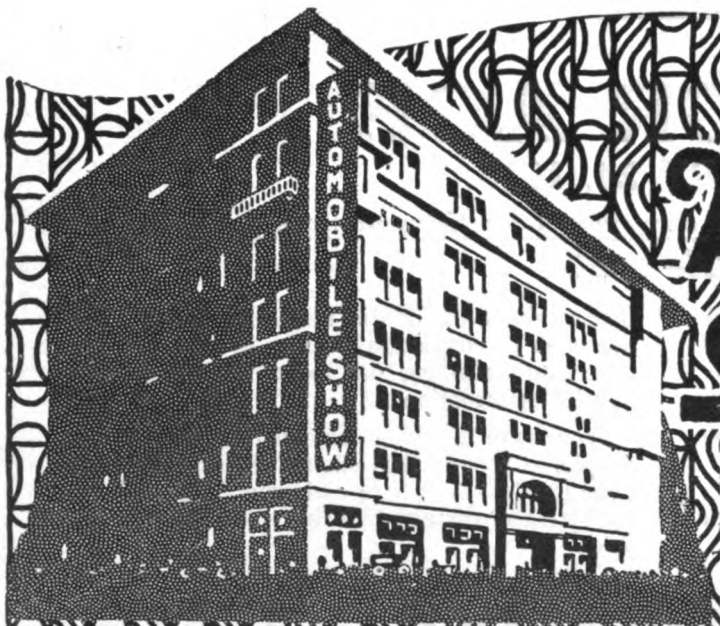
If you grasp this opportunity to tell them about your goods it will help you during the whole 1918 season. If you miss this opportunity, it will necessitate just that much harder and more expensive efforts on your part later on.

Get Your "Copy" in Early and Be Assured of a Good Position

The Class Journal Company

239 West 39th Street, NEW YORK **Mallers Building, CHICAGO**

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AT THE SHOW

★Hartford EQUIPMENT

★ Hartford Shock Absorber

See it practically demonstrated. Learn how it *constantly* controls every move on an automobile spring. Note the smoothness with which the spring contracts and recoils. No harshness, abruptness. Then the realization will come of its necessity to broaden your range of riding because it really *Makes Every Road a Boulevard.*





★ Hartford Bump Absorber

The car guard which protects in fullest measure. Practically break-proof, positively bump-absorbing. Flexes when striking, taking the sting out of the blow, saving not foreparts alone but all the car from strain and its passengers from jar. See it at the show.

★ HARTFORD AUTO JACK

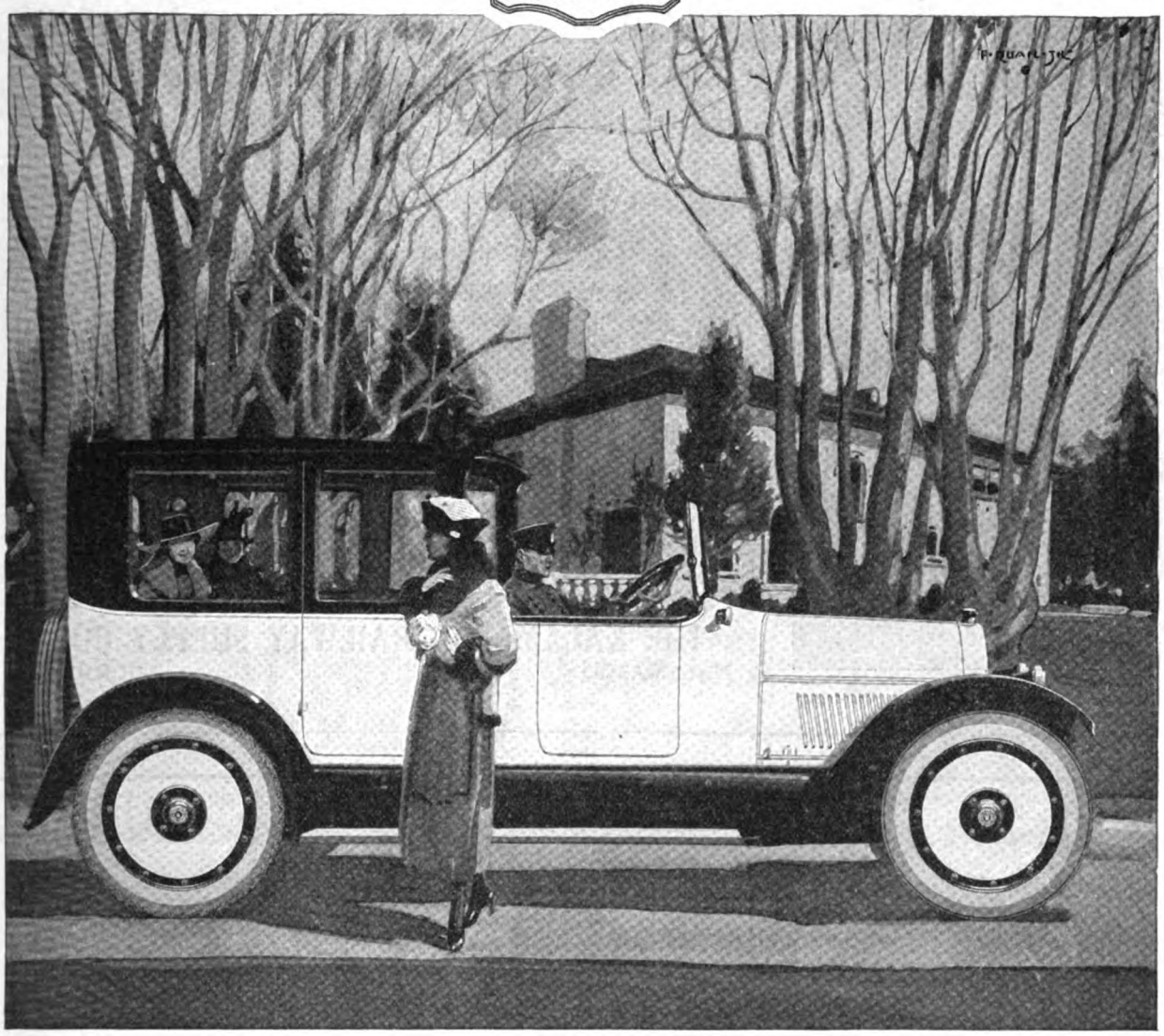
All that jack de luxe should be—*Strong* with the strength of solid-steel working mechanism and tough malleable-iron case; *Easy-working*—it lifts a heavy car with a wrist movement; *Handsome*—beautifully finished in black and gold; *Convenient*—Easily slipped under an axle and operated without stretching or straining. Long handle, short stroke; firm, solid base. Try it at the show.

EDWARD V. HARTFORD, Inc.
142 Morgan St., Jersey City, N. J.
Branches: NEW YORK, BOSTON, CHICAGO
Distributors in Principal Cities. Dealers Everywhere.



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DISTEEL WHEELS



DISTEEL WHEELS

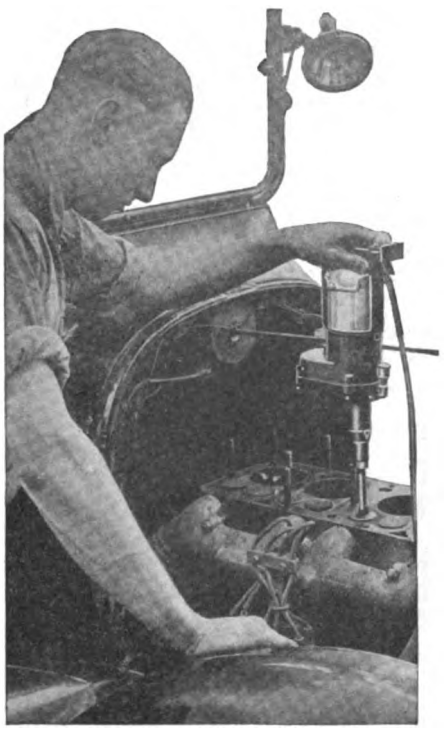
The favorable trend of public opinion is definitely established as to the vitally important factor of appearance of spokeless wheels. ~ ~ Disteel Wheels, in addition to distinctiveness, have many exclusive mechanical advantages over other types. Our proposition to dealers selling medium and high priced cars will be sent on request. ~ ~ ~ ~ ~

DETROIT PRESSED STEEL COMPANY
1804 Mt. Elliott Ave. Detroit, U.S.A.

DPS

When writing advertisers please mention Motor World—It identifies you

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The Jackson Electric Valve Grinder Makes New Profits in Your Service Station

Are you satisfied that every skilled mechanic in your employ is working at his maximum efficiency?

Did you ever investigate the time required to grind valves by your present methods? Doubtless you have found 10 minutes per valve a fair average.

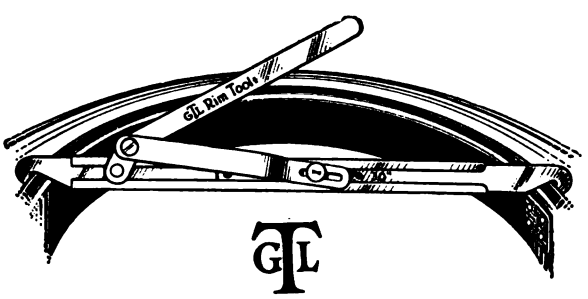
Now, the JACKSON Electric Valve Grinder—a thoroughly proven motor-driven instrument—perfectly performs the same operation in *10 to 20 seconds.*

The installation of a JACKSON Electric Valve Grinder is parallel to the adoption of a machine-driven shop or a motor-propelled tire pump. It is the new way—the money-making, profit-increasing way—of getting the most out of your business. Write for Bulletin "C."

Manufactured by

THE KALAMAZOO RAILWAY SUPPLY CO.

KALAMAZOO **MICHIGAN**



GTL

Rim Tool Sells
It Is Easiest to Operate—Best for the Tires



TGL Rim Tool in Place

Saving tires is a big problem in the motor world today. It is the duty of every jobber, dealer, repairman and car owner to make the most of the tires on hand.

One of the first principles of tire saving is in removing and replacing. Hammering, pulling, jerking, and all the other make-shifts are tire waste.

The TGL Rim Tool eliminates this waste. Without touching the tire, it takes the rim away from the casing—and the casing drops off.

And in addition, it is easier to use than any make-shift, it is quicker in operation, it is absolutely safe and always ready for service.

Should be in every repairshop, garage and tool box. ***Pays for itself in saving.***

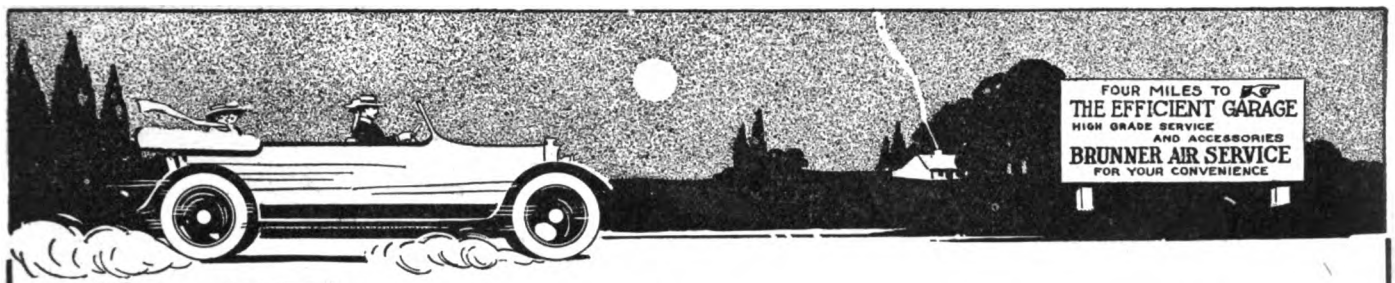
Write for free illustrated literature, showing every stage in operation.

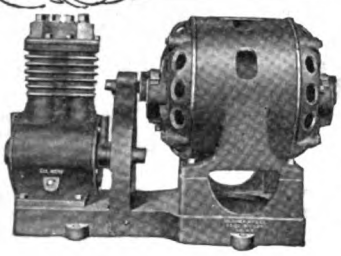
Especially interesting offer for dealers. Write!

METAL PRODUCTS MANUFACTURING COMPANY

2416 University Avenue, S. E. **Minneapolis, Minn.**

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The motorist who drives his car during the winter months knows that the severe jolts and jars his tires are subjected to on the frozen ruts and ridges of the roads during the winter necessitate even more careful tire inflation than during the summer months, and he favors Brunner Air Service because he knows it is a dependable and efficient service.

Investigate the BRUNNER *Air Compressor*

If you do not find the Brunner Line in your jobber's catalogue we will be glad to send you the name of the Brunner Jobber covering your territory and one of our complete catalogues and Garageman's Handbooks on Compressed Air.

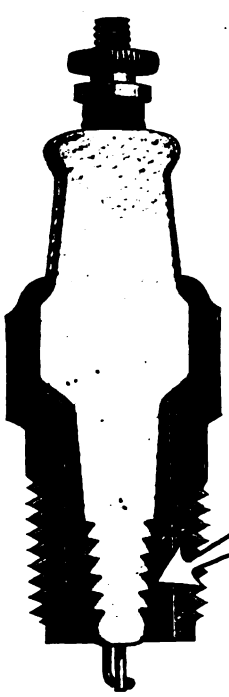


BRUNNER MANUFACTURING COMPANY

Main Office and Plant
UTICA, NEW YORK

Cincinnati Branch
CINCINNATI, OHIO





AC Carbon Proof
For Fords, Overlands and Studebakers

How Often Must You Clean Your Plugs?
Ford—Overland—Studebaker Owners

The new *AC Carbon Proof Plug* will permanently rid you of plug trouble and keep your motor running on *all* cylinders *all the time.*

The Reason

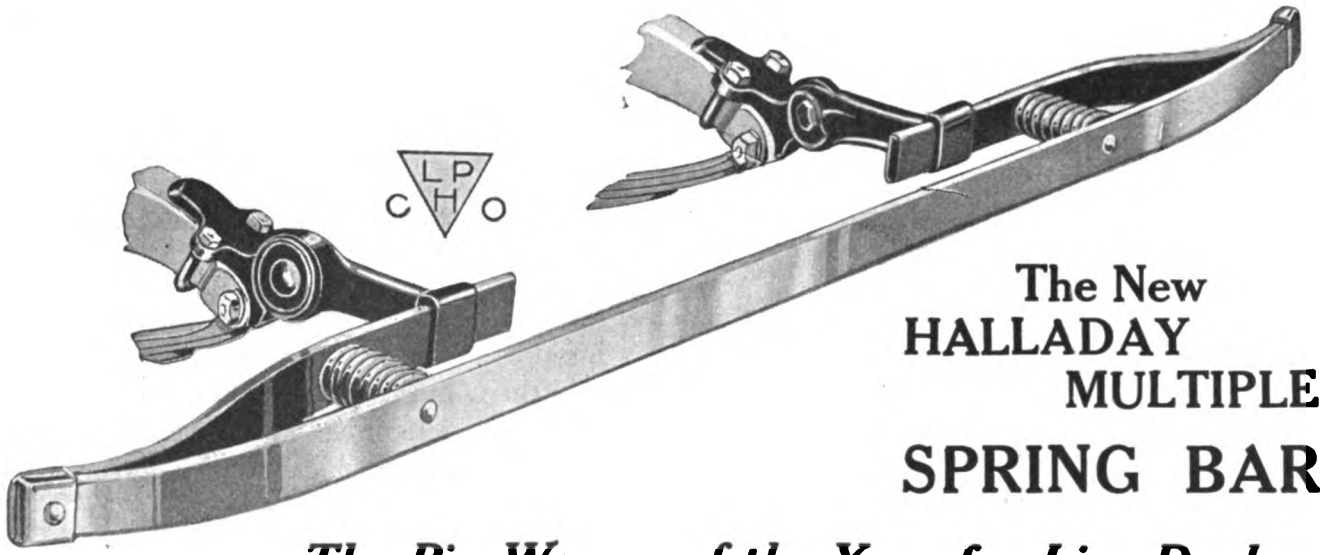
A deposit of carbon on the smooth surface of the porcelain is what causes short circuit with ordinary plugs. With the AC Carbon Proof plug the porcelain is provided with a number of ribs having saw tooth edges which attain a sufficiently high degree of heat to burn away the carbon. This keeps the edges free from deposits and breaks up any possible short circuit.

AC SPARK PLUGS

The Standard Spark Plug of America

Champion Ignition Company
Sole Manufacturers **Flint, Michigan**

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The New
HALLADAY
MULTIPLE
SPRING BAR

The Big Winner of the Year for Live Dealers

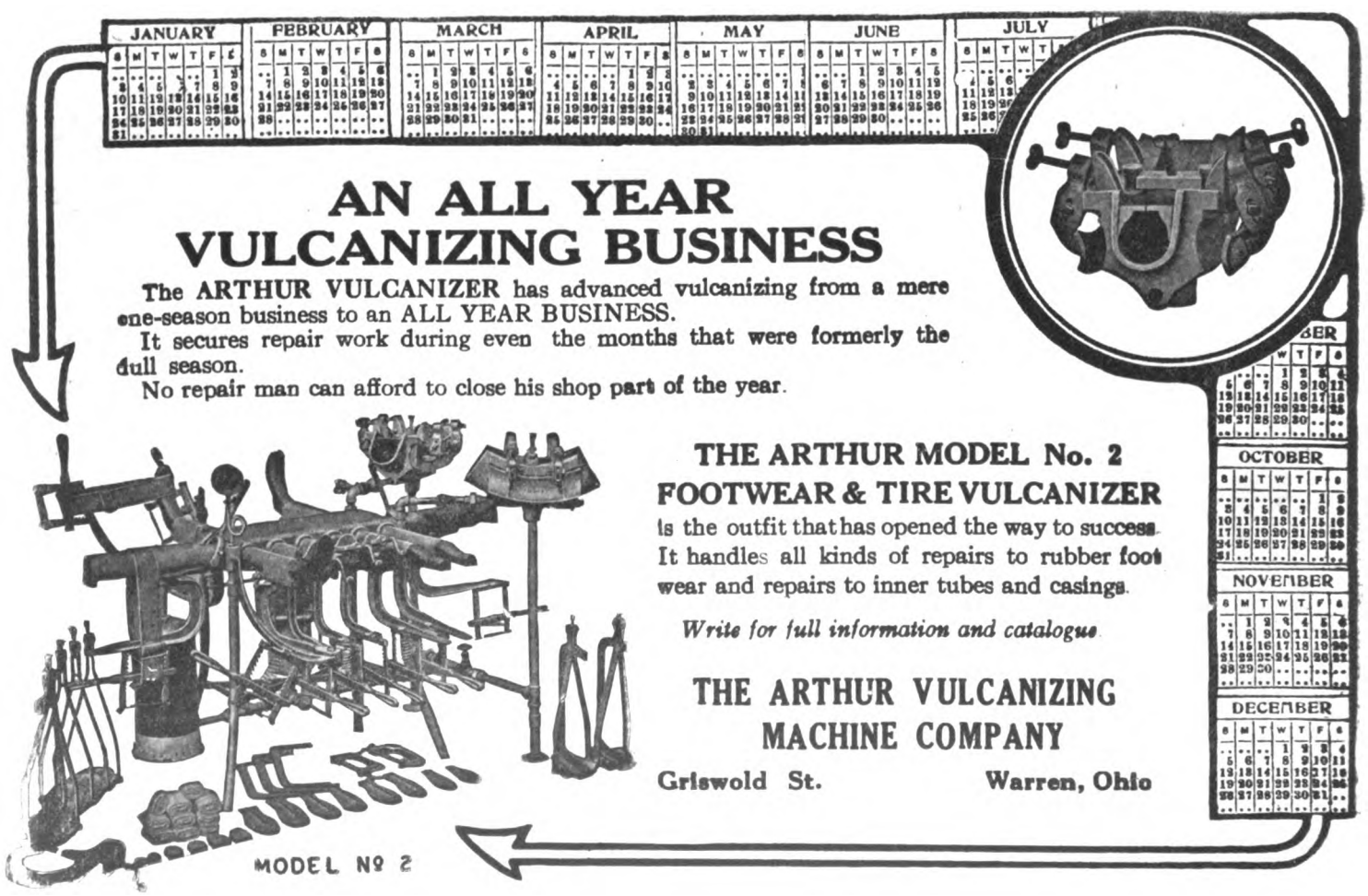
The experienced car owner instantly recognizes its mechanical qualities and efficiency, and everyone appreciates its thorobred lines and beautiful finish.

Get busy now and get the business of your vicinity; write your jobber or the nearest distributor.

L. P. HALLADAY COMPANY, Streator, Ill.

DISTRIBUTORS:

ASCH & CO., 16-24 West 61st Street, New York City.
GRAY-HEATH CO., 1440 Michigan Avenue, Chicago, Ill.
E. L. THOMPSON CO., 817 Boylston Street, Boston, Mass.
SANFORD BROTHERS, Chattanooga, Tenn., Southern Distributors
HUGHSON & MERTON, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors.



AN ALL YEAR VULCANIZING BUSINESS

The ARTHUR VULCANIZER has advanced vulcanizing from a mere one-season business to an ALL YEAR BUSINESS.

It secures repair work during even the months that were formerly the dull season.

No repair man can afford to close his shop part of the year.

THE ARTHUR MODEL No. 2 FOOTWEAR & TIRE VULCANIZER

is the outfit that has opened the way to success. It handles all kinds of repairs to rubber foot wear and repairs to inner tubes and casings.

Write for full information and catalogue

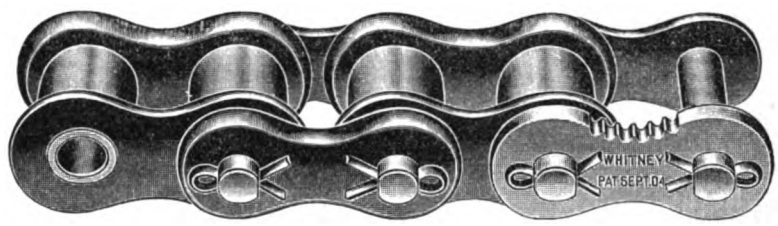
THE ARTHUR VULCANIZING MACHINE COMPANY

Griswold St. Warren, Ohio

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"WHITNEY"
COTTER TYPE
TRANSMISSION CHAIN
FOR MOTOR TRUCKS AND TRACTORS

Our years of experience in chain making, combined with the care taken in the various processes of manufacture and our rigid system of inspection, make "Whitney" Chains accurate, strong and reliable.



"Whitney" Chains are "doing their bit" on the battle fronts of Europe, where dependability is the all important factor and where failure may spell disaster.

The Whitney Mfg. Co. **Hartford, Conn.**

Chains **Keys and Cutters** **Hand and Milling Machines**

The SIOUX Valve Grinder

Makes Short Work of Valve Grinding

Ball bearing construction and reciprocating action make the Sioux the fastest and easiest running valve grinder on the market. A continuous movement of the handle in one direction gives the "back and forth" motion, which is absolutely necessary for perfect valve grinding. The hand grip is set close to the crank center. This does away with all side strain.



Get One for YOUR Tool Kit

Every mechanic in every town should have one. You are wasting your time if you are not using the most efficient tools you can buy. Five interchangeable driving points—will fit any valve. Perfect balance and perfect stroke. Material and workmanship of the best. Will last a lifetime. Investigate today. Price complete, $6.00. Liberal discount to dealers.

Sold by all live jobbers

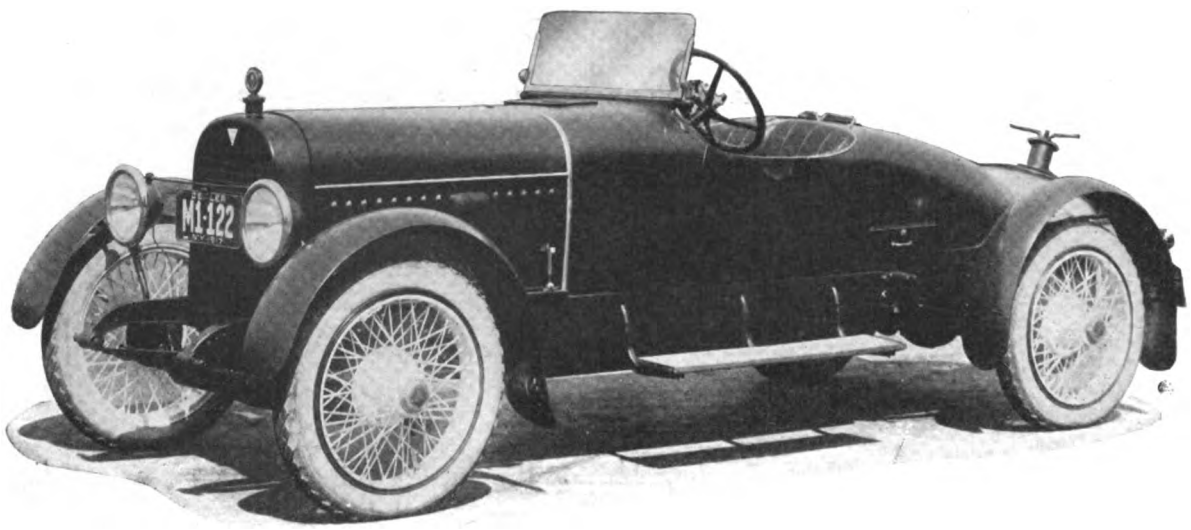
Manufactured by ALBERTSON & CO., Sioux City, Iowa

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Progressive Dealers

—will sell Distinctive Body Styles this Spring.

We suggest for your display

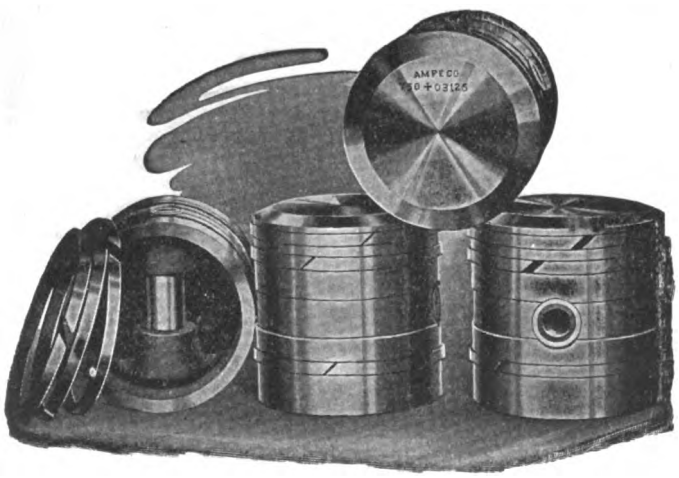


THE WALTON SPECIAL
Patented August 7, 1917

Built by the . . WALTON BODY COMPANY, 155 Avenue D, New York City

Fords Converted Into Trucks and Tractors Can Now Use

"AMPECO" PISTONS



FOR EVERY FORD CAR IN SERVICE

Better running trucks and tractors that pay, smoother running passenger cars that skim along easily under every load, inevitably follow when you install "AMPECO" light weight, evenly balanced pistons in your Ford. Overcome main bearing troubles, give increased power and greater speed. Found always in the most efficient motors on Ford cars.

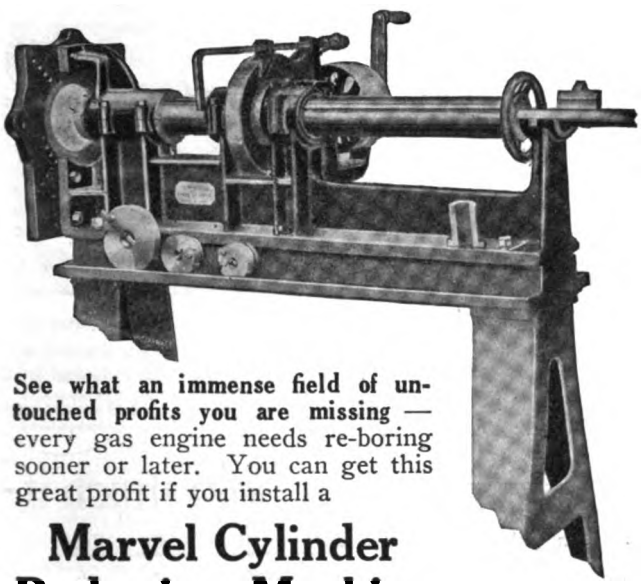
Use "AMPECO" Pistons and You Use The Best

AMERICAN MACHINE PRODUCTS CO.
MARSHALLTOWN IOWA

Exclusive Sales Agents—Fulton Sales Company, Suite 1100, 910 South Michigan Blvd., Chicago, Illinois



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See what an immense field of untouched profits you are missing — every gas engine needs re-boring sooner or later. You can get this great profit if you install a

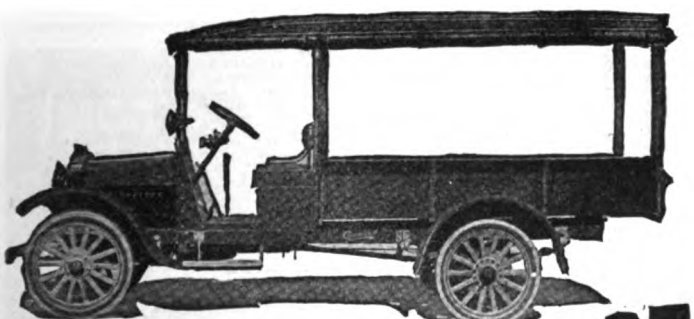
Marvel Cylinder Re-boring Machine

The only device that will do the work and bring you the profit—no other like it for *speed, accuracy, simplicity* of *operation* and *general efficiency.*

Will re-bore any block, 2½" to 8" in diameter, perfectly round and without taper, accurate to less than .001 of an inch.

Write for particulars and about the accurate fitting pistons we supply.

MARVEL MACHINERY CO.
1305 S. Third St., Minneapolis, Minn.



Commerce

1 Ton Trucks

A Year Ahead *of* Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

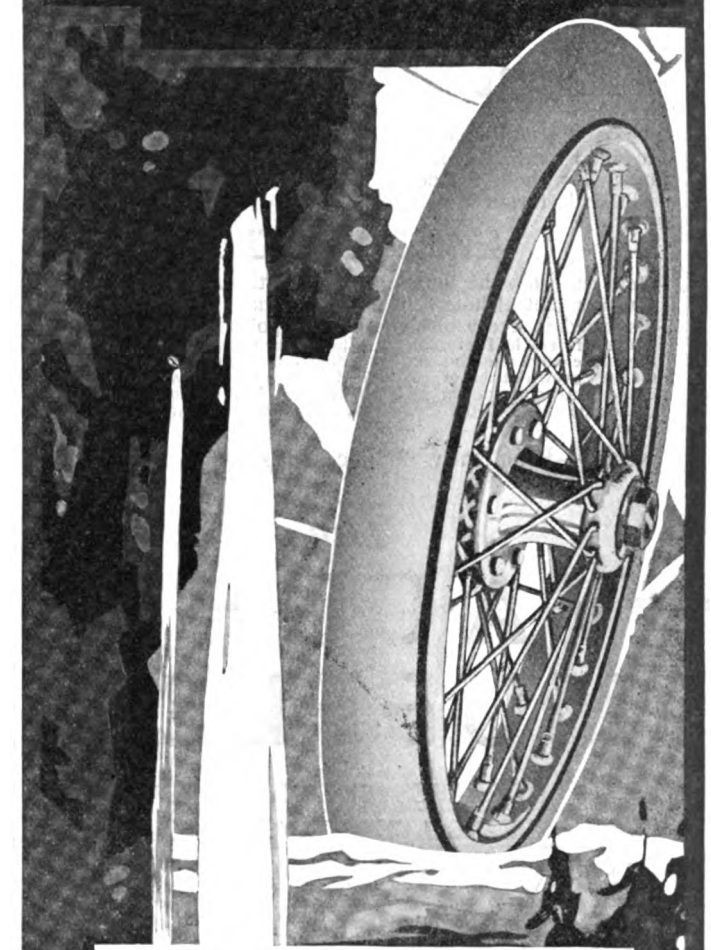
Commerce Truck Motor, Detachable Head—Torbensen Rear Axle—Detroit Steel Products Company Springs.

One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company
DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.

DAYTON
QUICK DETACHABLE WIRE WHEELS
MADE UNDER LICENSE



For

Ford and Chevrolet Cars

Quick Change and Economy

Sound construction is the real basis of Dayton Wire Wheel endurance. The triple laced spokes and remarkable resiliency, coupled with all that vast experience, vast knowledge and mechanical skill can do, make the "Dayton" the sturdiest wheel today, in addition to increasing mileage 25%.

Five wheels and four hubs make a set—can be changed easily and quickly. Color optional. They lend the last touch of refinement to the popular Sedan and Coupelet for winter use. When a tire change becomes necessary in zero weather you will appreciate the quick change feature of "Daytons."

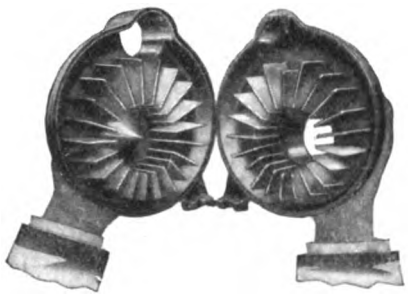
DEALERS AND DISTRIBUTORS

Grasp this opportunity to increase your winter sales, profits and the number of satisfied customers.

Deliveries NOW!

The Dayton Wire Wheel Co.
826 Miami Road, Dayton, O.

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Just Look at It!

These 2 iron castings are all there is to it. They bolt together with 3 bolts, and there you are! A complete muffler, without the possibility of rattle or loosening, that will outlast your car.

SIMPLE OPERATION

Note carefully the simplicity of operation. Exhaust enters through central hole shown in right half of muffler. It is dispersed in every direction by the pointed cone shown in center of left half of muffler. The gases thus dispersed flow between the numerous fins and, rounding their outside edges make for the hole shown at top of left half of muffler through which they pass into exhaust pipe and thence to outside air. The big discharge is thus broken up into 24 little discharges, whch reach the air *one after the other.*

Result—Practically no back pressure.

The VACUUM MUFFLER

INCREASES ENGINE POWER AND FLEXIBILITY—SAVES GASOLINE

Not only in scientific tests, but in actual service on different makes of cars, the Vacuum Muffler has repeatedly demonstrated its ability to increase engine power, prevent choking, and make an easier, quicker "pick up." A thorough test conducted by Mr. Joseph Tracy, the well known automotive engineer, showed that a gasoline engine *actually developed more power and used less gasoline with a Vacuum Muffler than with a free exhaust!*

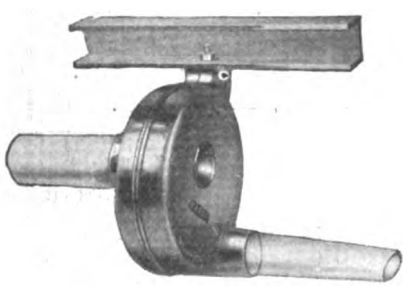
Numerous letters from actual users (copies on request) tell of remarkable improvement in their engines after the installation of this muffler.

GUARANTEED AGAINST BLOW OUTS

No carbon gathers in the Vacuum Muffler, and its construction does away with muffler explosions. It is absolutely guaranteed against blow outs.

DEALERS: Write at once for full particulars concerning this muffler. There is a good profit in its sale and when you see and handle it you will appreciate what a cinch it is to sell.

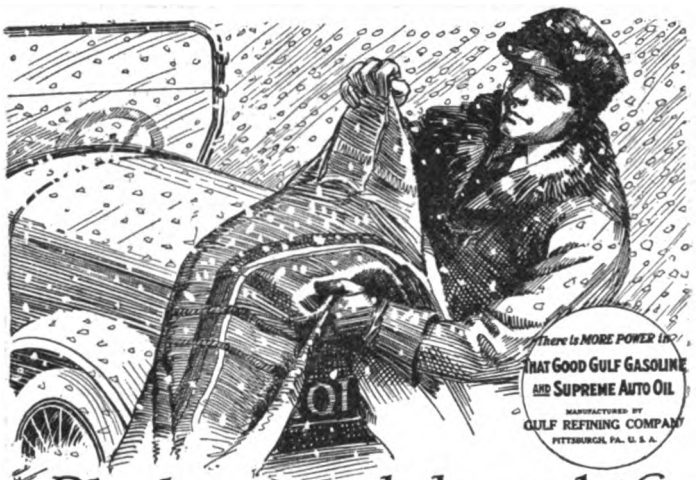
THE VACUUM MUFFLER CORPORATION
154 Nassau Street New York City



HERE IT IS ATTACHED

For Fords:
Size 6"x1¾"
Weight 6½ lbs.

For Larger Cars:
Size 7"x2"
Weight 11 lbs.



Blankets won't help much if—

the oil you are using does not flow freely at Zero.

SUPREME AUTO OIL flows freely at Zero.

STARTS WITH THE ENGINE

This is most important during the Winter months. You should know whether the oil you are using "flows freely at Zero." All oils do not possess this feature—notably the paraffine-base oils, which thicken up under cold and often cause great damage to the motor.

The safe way is to ask for SUPREME AUTO OIL—it "Flows freely at Zero" and leaves less carbon, owing to the fact that it is a Southern Asphalt-base oil containing no paraffine to gum, stick or thicken.

MANUFACTURED BY
GULF REFINING COMPANY
The Largest Independent Refining Company in the World
General Sales Offices: Pittsburgh, Pa.
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Air is Life!

Insufficiently inflated tires mean excessively inflated tire bills. Keeping your air pressure up means keeping your tire expense down.

Test your air pressure daily with a

Twitchell Air Gauge

and give your tires new air whenever they need it.

New Air Is Cheaper Than New Tires

At your dealer, or

The Twitchell Gauge Co.
1220 Michigan Avenue, Chicago
Price $1.25

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Seal-Tite
PISTON RING



Go Fast Over the Counter *for* Sales

The one-piece piston ring that sells at a moderate price and will not leak, goes fast over the counter to waiting trade.

SEAL-TITE is that kind of a ring. Guarantees more power, perfect compression, perfect lubrication, longer life to the motor, saving of gasoline and lubricating oil, absence of smoke, and clean spark plugs.

All individually cast and inspected. Made in every popular size and over-size. Perfection guaranteed. As low in price as 75c.

Write for free illustrated literature, and, if a dealer, ask for liberal proposition.

Seal-Tite Piston Ring Co., Inc.
1704 East Lake Street
Minneapolis Minnesota

Increase your shop earnings with the

W. B. LATHE ATTACHMENT
FOR UNIVERSAL GRINDING

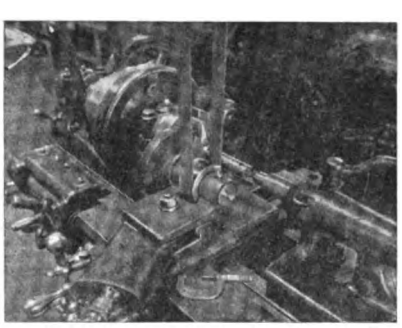
Quickly attached to the compound rest of a lathe and driven by an overhead drum, it makes possible the grinding with accuracy and speed of hardened mechanical parts.

The W. B. Grinder is superior to the direct connected electric type because—it is smaller in bulk with greater power, has large adjustable bearings and is entirely free from electrical trouble.

With this equipment all kinds of cylindrical and internal grinding can be done—such as wrist pins, pistons, knuckle bolts, thrust bearings, ball bearing cups, cones, piston rings, hardened transmission shafts, milling cutters, reamers, etc. With internal grinding spindle, it will grind holes in gears, ring gauges or other parts.



Cylinder Grinder



Price $60.00 F.O.B. San Jose.

SPECIFICATIONS

Spindle—Hardened and ground, tool steel taper bearings, 1⅛" diameter.
Bearings—Phosphor bronze adjustable bearings.
Pulley—2½" x 1¼" flanged, takes 1¼" belt.
Collets—Interchangeable wheel collets.
Countershaft—Tight and loose pulleys, 2" x 4"—drum 7" x 36".

ARTHUR T. BRITTON, 590 South 1st Street SAN JOSE, CAL.

Manufacturer of the W. B. Line

Haywood's



Nationally Advertised

Tire Repair and Vulcanizing Service

In these days of high tire prices, the tire repair business is getting bigger and better than ever, as motorists learn the method of true tire economy. Why not cash in on this opportunity? Put in a Haywood Tire Repair Plant. Link up with a nationally advertised tire repair service. Six years of Haywood's advertising has standardized the Haywood method.

The Sign of the Man and Machine

—is the connecting link between the tire repair man and the automobile owner. It chains the established trade of hundreds of customers to your business. It connects your shop with a national tire repair service—a standardized service—a service that motorists know absolutely to be economical, practical and efficient.

The Haywood System

—is scientific—a true system of conservation of tires—a system that saves motorists thousands of dollar on tire bills. It means repairs that are lasting—vulcanizing that holds—repairs that are solid as the original tire itself, insurance to motorists of no regrets on the road.

Haywood's Tire Repairing and Vulcanizing Plants

The Haywood Plants are complete, all in one unit—are easily operated—no experience necessary. Here is your opportunity to make big money—to add hundreds of dollars in profits a year to your business. Occupies only a small part of your shop—can stand right out in the open where your customers can see it—a constant reminder to keep their tires repaired. Your shop equipped with a Haywood Plant is the motorist's logical haven for tire repairing. It completes your service—a service that customers like—a service that brings and holds business at big net profits.

Write for New Catalog

Use a letter or post card or simply send the coupon below. This brings the big book of facts—tells all about tires and how to repair them—shows outfits in use—gives proof of successes—shows how we co-operate with plenty of advertising and plenty of help—how you link up with a national service. Book gives complete details. Write today. Don't delay.

The Haywood Tire & Equipment Co.
1042 N. Capitol Ave., Indianapolis, Ind.

Haywood Tire & Equipment Co.,
1042 N. Capitol Ave., Indianapolis, Ind.

Gentlemen: Please send me full particulars of your national service of tire repairing and complete catalog and information of Haywood Tire Repair Plans.

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Black Safety Treads

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The City of Goodrich, Akron, O.

Stop Losing Money on Used Cars

Get the

National Used Car Market Report Service

Published by

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Chicago, Illinois

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last approximately six months longer than the average battery. They are about 15 per cent more powerful in proportion to size and cost.

This is why their sale is now increasing on an average of over 60% every four weeks—a record no other battery has ever approached.

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Eastern Branch, 68th and Broadway, New York City

Sexton's

CASTOR MOTOR OIL

Is guaranteed to possess greater heat resistance, higher flash, greater viscosity and to give two to three times more mileage than any other oil.

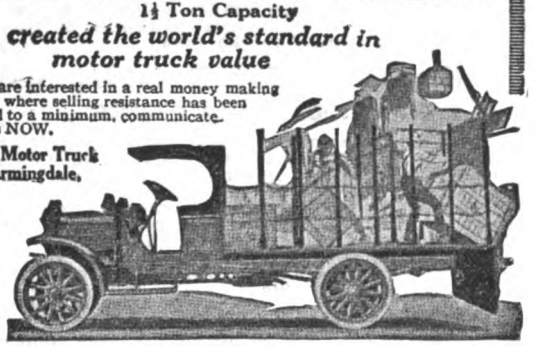
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SEXTON OIL CO., North Chicago, Ill.

THE FULTON TRUCK
1½ Ton Capacity
Has created the world's standard in motor truck value

If you are interested in a real money making agency where selling resistance has been reduced to a minimum, communicate with us NOW.

Fulton Motor Truck Co., Farmingdale, L. I., N. Y.



REPAIRMEN
can use
Stevens Spring Shackle Bolts
with confidence of giving full satisfaction. Washers supplied for adjustment. Made of high grade carbon steel. Case hardened and ground.

Furnished with nickeled grease cups, castellated nuts and washers for adjustment.

Diameters—7/17", ½", ⅝", 9/16", ¾".
Lengths—2¾" to 4½".
Price—each 40c—Packed 10 in a box.

Order Through Jobber.

STEVENS & COMPANY
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STEVENS NEW YORK



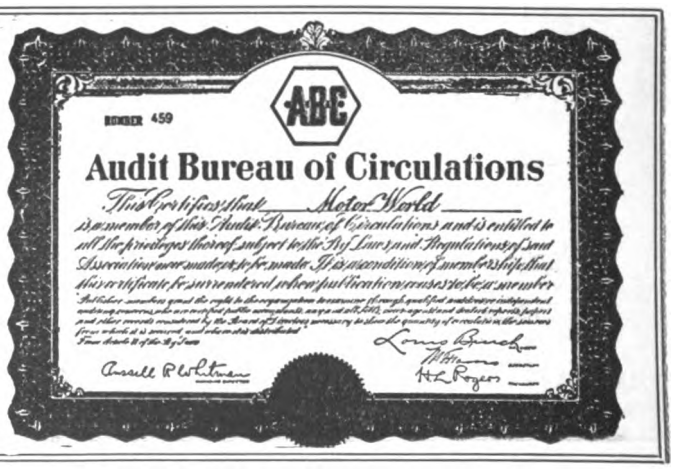
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Nation-wide Service on Bearings

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Be ready to give cars a new SPLENDOLA **finish**—not just a polish—at overhauling time. Sells fast, backed by our advertising.

Every dealer should have it. Jobbers, State and District Representatives swear by it for sales and profits.

Write for complete details about the entire SPLENDOLA Line of seasonable products. Act NOW.

C. F. ROBERTS CO., Inc.

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Selden Trucks

Light Delivery, 1, 2, 3½ and 5 Ton

Write for full information on the Selden Line

DEALERS: Write or wire for desirable territory

Selden Truck Sales Company

Rochester, N. Y., U. S. A.

VULCAN QUALITY AUTOMOBILE SPRINGS

SPRINGS IN STOCK FOR ALL CARS

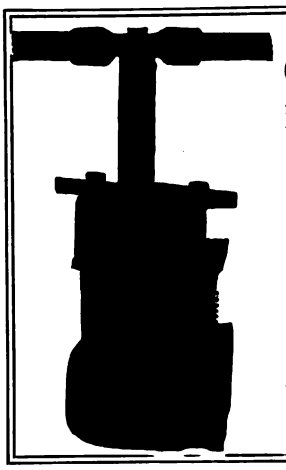
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Cylinder Reboring Machine

is adjustable and will rebore practically all makes of

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It is simple, speedy and accurate and can be used by anyone familiar with tools.

Indispensable in any repair shop.

We furnish oversize pistons for all makes of motors.

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THE industrial authority on all matters connected with the automotive industries.

The oldest weekly journal in the field.

Its scientific articles are complete and authoritative—its editorials of importance—its news accurate and valuable.

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DUTCH BRAND



products comprise 27 motoring necessities, among which are 2-in-1 Tread Filler, Auto Puncture Cement, Vulcanizing Cement, Radiator-Seal, Rubber-Seal, Carbocide Carbon Remover, Varni-Brite Auto Polish, Tire Talc, Tire Tape, etc. Catalog on request.

Order from your jobber.

"Look for the Dutch Girl on the Label"

VAN CLEEF BROS.

Manufacturers Dutch Brand Rubber Cements and Auto Chemical Specialties

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ZENITH CARBURETOR

KNOWN the world over as the *zenith* of carburetor efficiency. A long list of American builders of cars, trucks and aeroplanes believe this simple, plain tube device to be the best insurance for permanent carburetor satisfaction.

Zenith Carburetor Co.

New York Detroit, U.S.A. Chicago

TRUXTUN

Converts *any* car into a substantial 1-ton or 1½-2-ton truck

Exclusive territory and attractive dealer proposition

COMMERCIAL CAR UNIT CO.

Philadelphia, U. S. A.

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PHILBRIN
DUPLEX IGNITION
—with a second system to spur the motor to super-service.

COMBINES two separate and distinct systems in one—a Single Spark System, most economical of gas, and offering vastly increased power. A Secondary or High Frequency System which delivers to each cylinder a stream of a thousand sparks a second—overcomes abnormal conditions, such as foul spark plugs, poor fuel, poor carburetion, and cold cylinders—*offers 100% Assurance against ignition failure.*

Easy to install, moderate in price. Descriptive catalogues and our special sales proposition on request.

PHILIPS-BRINTON COMPANY
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Schutte SPORT BODIES
ARE BUILT
TO FIT ANY MAKE OF CAR
"MILITARY SPORT MODEL"
Popular Among Officers

Schutte DISC WHEELS
INCLOSURES
FOR ANY STYLE OF
"WOOD OR WIRE WHEEL"
Patent Applied For

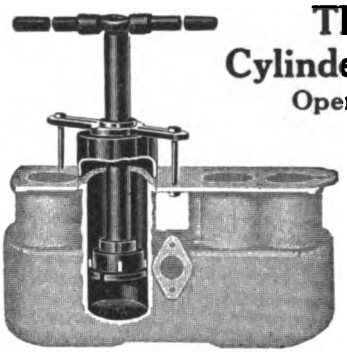
CHARLES SCHUTTE BODY CO.
LANCASTER PENNA., U. S. A.



GUARANTEE
VISIBLE PUMPS
Are getting the business because the people who own cars like to see what they pay for.

Honest and Accurate

GUARANTEE LIQUID MEASURE CO.
Farmers Bank Bldg. Pittsburgh, Pa.



The Universal Cylinder Reboring Tool
Operates on Any Car
Rebores cylinder from start to finish without slightest taper, and perfectly round. Automatic and quick in action. Takes as much as 1/16" oversize in one operation, and completed job will be a smooth finished and true to 1/1000 of an inch.

Range of Expansion, 2½" to 5 1/16". Any type motor.

Write for free illustrated literature and details.

Specify Catalog No. A.

For Sale by Leading Jobbers
THE UNIVERSAL TOOL COMPANY, Inc., Detroit, Michigan

Vulcanizing With a Vanderpool Vulcanizer Brings Big Profits



Send in this ad with your name and we will mail catalogue and prices.

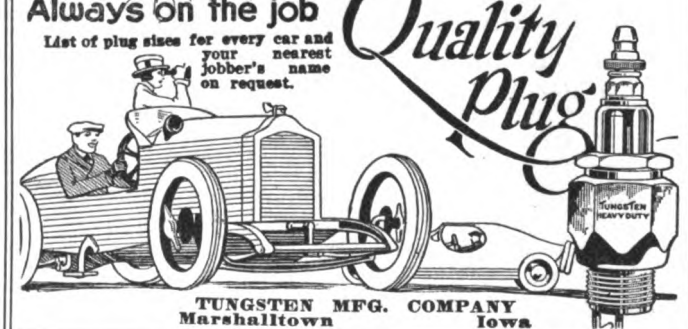
Here is an exceptional opportunity for Garages as well as Vulcanizing Companies to secure a vulcanizer that will turn out high-grade work at a small cost. The fuel saved alone will pay for the machine in a short time—then you will "cash in" on your investment. This plant, the Vanderpool Vulcanizer, is meeting with enthusiastic approval of hundreds of satisfied users all over the country. Unsolicited testimonials from the various companies now using the "Vanderpool" testify to the dependability, efficiency and economy of this "Vulcanizing Wonder." One man writes that the first month's profits paid for the plant. No experience needed—we teach you how. It occupies very little floor space, and "once bought, you will never have to buy again."

VANDERPOOL COMPANY
Box 82 Springfield, Ohio

TUNGSTEN SPARK PLUG
Always on the job

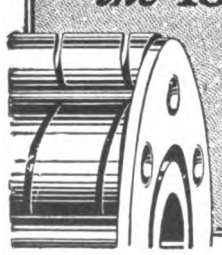
List of plug sizes for every car and your nearest jobber's name on request.

The Quality Plug



TUNGSTEN MFG. COMPANY
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HYATT QUIET
-the logical bearing
for Motor Cars
Motor Trucks and
all Motor Vehicles



NEW DEPARTURE BALL BEARINGS



Strength
Stamina
Service



The New Departure Manufacturing Co., Bristol, Conn.
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Quality in Motor Trucks

It has been our endeavor to create a commercial vehicle that would excel first of all in the quality of the material used, and, second, in the economy of its operation.

Our reputation for producing the most lasting truck is recognized by our many users.

We offer for your convenience the following sizes:

1½-ton 3½-ton
2-ton 5-ton
7-ton

Hurlburt Motor Truck Company
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A-B-C
STARTING & LIGHTING SYSTEM FOR FORD CARS
TWO UNIT SIX VOLT

Conforms more closely to Ford engineering and construction than any other electric starting system ever sold.

A. B. C. STARTER CO., Detroit, Mich.

Price $7.50



Rothweiler Pump

Empties a Barrel or Drum Completely

No Waste *No Drip*

Good for Oil, Gasoline, Turpentine, Light Paint, etc.

Works Easily, Quickly and Efficiently

A Great Trouble Saver

ROTHWEILER & CO.
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Miles Cheaper

Users Report Records of

8,000
10,000
12,000
15,000
Miles

Quaker City Rubber Co.
Philadelphia

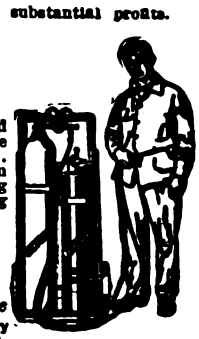
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Savings made, please your patrons and pay good substantial profits.

PREST-O-LITE
Dissolved Acetylene
(Ready-made carbide gas)

Adds to the efficiency and usefulness of any good welding equipment. We furnish thoroughly high-grade welding apparatus for $75.00 (Canada, $100.00). The average user will also need gas cylinders at an additional cost, and about $10.00 worth of welding supplies. Truck and special equipment for cutting operations at extra cost.

Send for details of Prest-O-Lite Service for Oxy-Acetylene Welding.



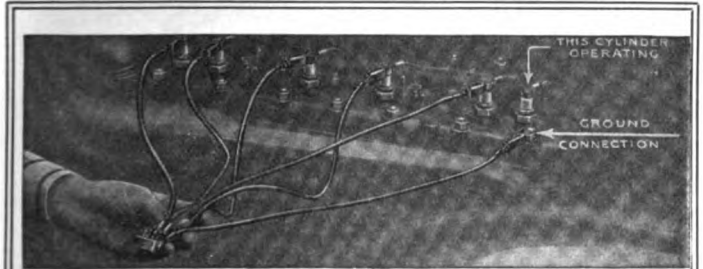
THE PREST-O-LITE CO., Inc.
The World's Largest Makers of Dissolved Acetylene
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GLOBE TIRES
GUARANTEED 6000 MILES
REDUCE THE OPERATING COST OF YOUR CAR

Long Mileage Tires MUST Be Hand Made

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Executive Offices: 1851 Broadway, New York, Factory: Trenton, N.J.





THE EDGERTON MOTOR TESTER
First Aid for All Motor Troubles

Such as faulty ignition, missing explosions from any cause, weak cylinders, leaking valves or pistons, faulty valve or ignition timing, bad carburetor adjustments, knocking in cylinders or bearings, carbon troubles, etc. Made in two models for any number of cylinders.

Write for literature or order today. Prices $2.00 to $9.50

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"Clero Horns"
is the other name for
"Dealer Profit"

Eve y live dealer in this country realizes that the only successful business is a profitable business.

We want to aid in making your business more profitable—and *we can do it.*

Clero Horns are manufactured by a big organization with unexcelled facilities for putting highest quality into large production, and thereby *insuring* low list prices, liberal discounts—and consequent good profits. We want every dealer who handles accessories to write us at once. We will send our irresistible profit making proposition by return mail. Don't put it off until a later time, but write for our "AA" dealer proposition *at once.*

Most Liberal and Livable Discounts to the Trade

THE FITZGERALD MANUFACTURING CO.
Department C Torrington, Conn.

Bunting Bearing Bronze IN Cored Bars



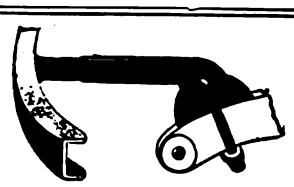
Bunting Bearing Metal is standard today with both Manufacturer and Repairman. Is for sale by most any Jobber or can be purchased direct from us.

Ask for Pamphlet "Y." STOCK SIZES

Piece No.	Outside Diameter	Inside Diameter	Length	Approximate Weight
A	1	½	12	2
B	1⅛	⅝	12	3½
C	1½	¾	12	5
D	1¾	¾	12	7
E	2	1	12	8½
F	2¼	1⅛	12	10
G	2½	1⅝	12	11½
H	2¾	1¾	12	12¾
I	3	2	12	13¾
J	3¼	2⅛	12	15½
K	3½	2⅝	12	17
L	4	3	12	21
M	4¼	3⅛	12	20

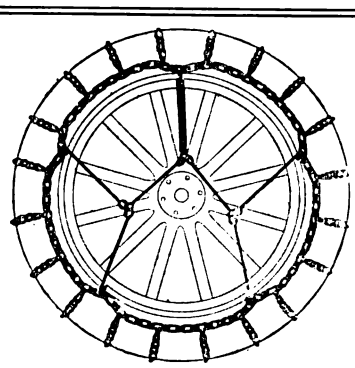
The Bunting Brass & Bronze Co., 717 Spencer Street Toledo, Ohio

SAGER BUMPERS



Sell Easily. They sell because of their low price, and because of their reputation—a reputation which is constantly growing on account of their uniformly good quality and efficient service.
Sager Bumpers provide the dealer and jobber with a full line of bumpers in all styles and to fit all cars.
If you do not know the Sager Line, look it up. It means big profit and satisfied customers.

J. H. SAGER COMPANY
36 South Water Street Rochester, N. Y.



Merchant's Anti-Skid Chain Tightener at $1.00

a pair offers a swell opportunity for profits to dealers. It keeps the chain from running too loose and pounding on the fender, yet allows it to creep around the wheel.

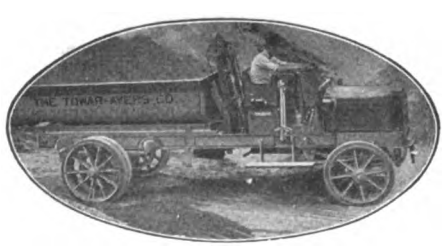
Simple, light, neat, compact, durable—easily carried and easily applied.

If your jobber can't supply you—write for our liberal proposition.

M. H. MERCHANT, 236 Emma Street
SYRACUSE, NEW YORK

IMMEDIATE DELIVERIES
UNITED TRUCKS
2-TON 3½-TON 4-TON 5-TON

Immediate deliveries mean *additional* profits! Wire us your requirements and for option on your territory.



United Motors Company
671 NORTH STREET
GRAND RAPIDS, MICHIGAN

Makers of Springs and Axles for Heavy Duty Service for more than Fifty Years

SHELDON
WORM GEAR AXLES

SHELDON AXLE & SPRING CO.
WILKES-BARRE : : : : : PENNA.

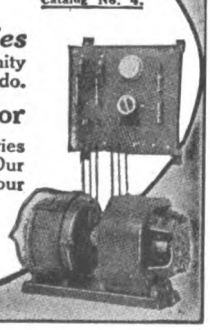
Turn Waste Space And Spare Time Into Big Profits

Ask For Catalog No. 4.

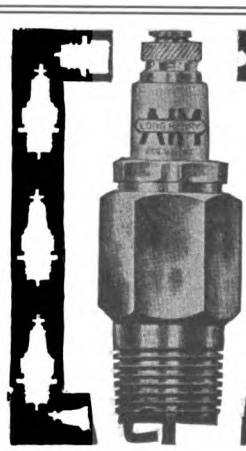
Recharging Batteries
offers garage men a bigger opportunity for profits than anything else they can do.

Our 3-G Motor Generator
charges from one to eight 6-volt batteries at one time. Anyone can operate it. Our 9-G Generator charges one to twenty-four batteries at a time.

There are over 8,000 of our vibrating type Battery Chargers in use. Write for particulars.



ST. LOUIS ELECTRICAL WORKS,
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St. Louis, Mo.



LONG HENRY
Yours for Fords

Finished in Golden Glow and with special construction Long Henry sells himself. Long hex enables handy wrench operation and Long Henry's clearance keeps him clean and free from carbon. He goes twice as long without cleaning.

Auburn Ignition Mfg. Co.,
Auburn, N. Y.

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ECON-O-KLEEN

YOU PUT IT IN THE GASOLINE

$1

Can Treat 112 Gallons of Gasoline

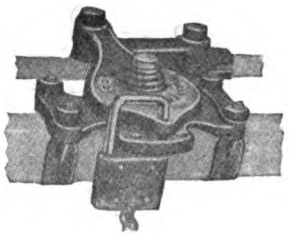


Makes Carbon in the Motor Go to Work

By Over 800 cans were sold in 6 weeks, without a line of advertising. NOW OUR BIG CAMPAIGN IS ON. ECON-O-KLEEN sales—and re-sales—pay. *They all come back at $1 a can.*

Write for complete details today. Get Doc O'Kleen's Prescription NOW.

Econ - O - Kleen Fuel Company
Thief River Falls, Minnesota



PRICES

East of the Mississippi.....$5.00
With Lock 6.00

West of the Mississippi.....$5.50
With Lock 6.50

Make Money with HELCO No. 2

Steering Control & Locking Unit

A proper mechanical center has long been sought by makers and users of cars. HELCO NO. 2 supplies it, and holds the front wheels in a straight course over ruts, snow, sand, mud, etc. Saves gas and tires by insuring better transmission and steadier tread.

Steering gear locks in position with high grade padlock, preventing theft.

Installed in ten minutes by anybody.

Quick sales and good discounts make HELCO a profitable dealer proposition. Write for details.

Guaranteed to hold road and save fuel and tires

HOMESTEAD ENGINEERING LABORATORIES COMPANY
HOMESTEAD, PA., U. S. A.

DEFENDER LOCK FOR FORDS

$3.50

The DEFENDER Lock is a double protection for Ford cars left at the curb, or in an unprotected garage. Its hold is secure. Yet it in no way changes the equipment, ignition or wiring of the car.

Locks the Ignition Off and the Coil Box Shut

Write for free illustrated literature and complete details.

DEFENDER AUTO-LOCK CO.

Manufacturer of

Defender Locks for Automobiles

506-8 Marquette Bldg., Detroit, Mich. Canadian Address: No. 3 Ouellette St., Windsor, Ont.

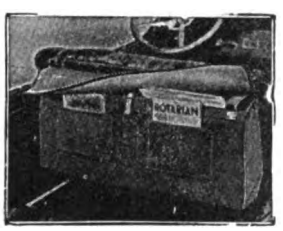
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Here is a luggage carrier that is good looking, well made, *most accessible*, and big enough to carry just what you want. It has special pockets for reading matter, clothes brushes, and other small articles. Near at hand always, and opened and closed with greatest ease, at the same time it affords perfect protection against dust or rain.

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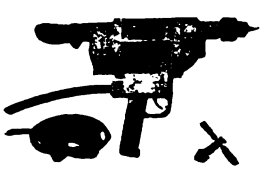
can be attached to front seat of any car in 5 minutes and is of the greatest convenience in carrying wearing apparel, blankets, luncheon, books, etc., etc.

If not found with your local dealer send P. O. order or check for $3.50 and we will forward one to you.



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BERKSHIRE, N. Y.

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The big advantage of this drill lies in the fact that you do not have to let go with either hand in order to stop it when the bit breaks through.

You just pull the trigger and cut off the current.

The steadiest, most satisfectory and economical hand drill ever made.

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Canadian Distributors. **Sales Representatives in England.**



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Haynes enjoys a world-wide reputation for building long-lived cars of low upkeep. We intend that, during our *25th Successful Year*, Haynes dealers shall cash in on Haynes reputation to an even *greater* extent. Write

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The AERMORE Exhaust Horn

Built on the pipe-organ principle. Gives a musical signal effective for long or short distances. Amply warns but does not frighten.

Cannot clog; easy to put on; has no up-keep expenses; lasts as long as the car. A winner for dealers.



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Metal, Rubber and Fabric welded into one unit. Guaranteed for one year.
Write for details.

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INCORPORATED
RAYMOND & TILLARY STS.
BROOKLYN, N.Y.



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Get-a-way

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It's a sales-making demonstration for Inter-State dealers. We want more dealers. Write at once.

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The Original Double Arm SHOCK ABSORBER W&C For FORD CARS

Recommend W & C

to customers who merely ask for shock absorbers. W & C is what they mean. It insures the easiest riding Fords.

Ask your jobber's salesman or write us direct.

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Stock the fastest-selling winter accessory. Season now on. Live for sales 3 months out of 12.

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Sells big wherever introduced. One model fits all cars except Fords. Immediate action necessary to secure territory. Standard Model, $15. Utility Front Seat Heater, $10. Utility Jr. for Fords, $7.50. Ask for prices west of the Rockies.

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Archer Ave. & Canal St., Chicago
Eastern Sales Office, 149 Church Street, New York
Mfrs. of the famous Utility Auto Specialties

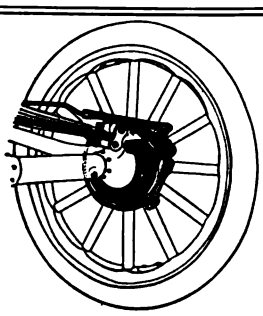
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One dealer in a town of 3000 people installed Forty Sets of "Pla-Safe Brakes" last March. Another dealer in a crossroads town installed twenty-five sets this summer.

All you need to do is to show a Ford Owner this Brake and he buys it.

Simple to install, no holes to drill. Why not cash in on this fast-selling accessory?

Write for our Disc and Big Selling Plan.



Retail price $10.00 per Set

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America's New Quality Truck
1½-Ton and 2½-Ton Models

Constructionally Superior in 24 Different Particulars
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MANLY MOTOR CORPORATION
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KIMBALL TIRES

Are Doubling Profits for Some Dealers

Write for Our Interesting Offer

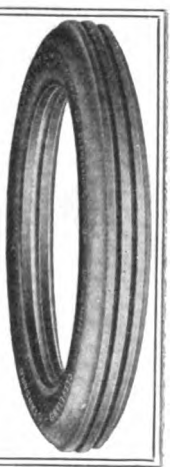
These tires are sold without a guarantee. Write and ask us how we do it. They are positively *not* seconds, but first-class fresh casings.

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30x3	$ 7.55	$1.90	32x4	$14.75	$3.05
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32x3½	11.55	2.25	34x4	16.35	3.20

Prices on Other Sizes in Proportion

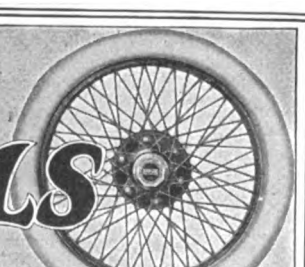
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This "Straight Side" Type is Made Also in Clincher Type

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Make more money selling Gemco Bumpers for front and rear. Built on correct end-thrust principle. Diamond or channel bars—extra heavy, can't rust.

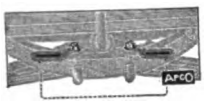
End Thrust Bumpers Ask your jobber or write direct.



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FOR FORDS



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List Price seventeen cents. Dealers in quantity, one-third off. Ask your jobber.

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$1245 1¼ Ton Chassis
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is here

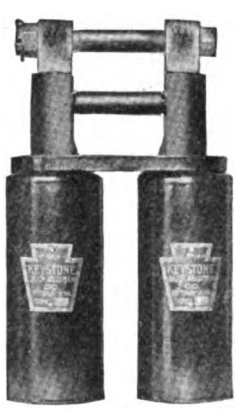
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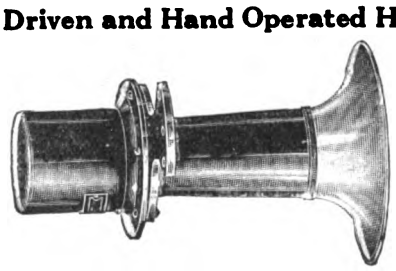
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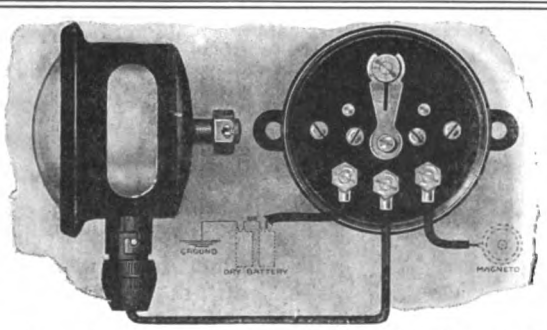


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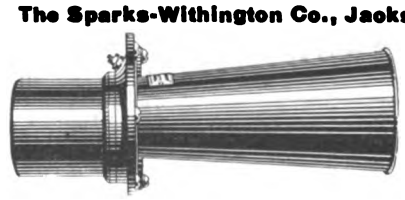
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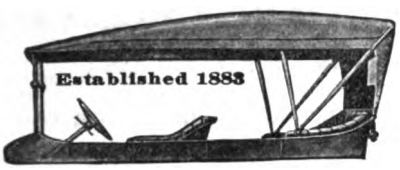


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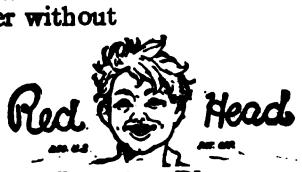
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Ford cars are difficult to start in cold weather without



Priming Plugs

A few drops in the cylinder thro' the priming plug—and the engine hums.

$1.50 Everywhere.

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MADE OF THE BEST CONTINENTAL MOTOR

SPECIFICATIONS:

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$1990.00

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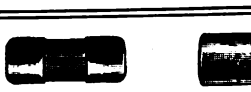


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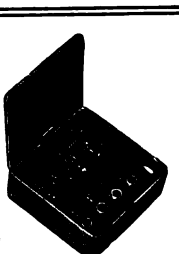
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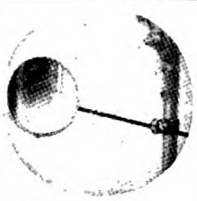
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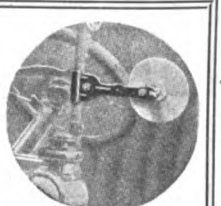
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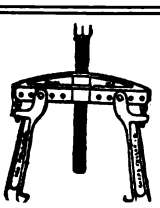
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For Removing Auto Wheel, Gears, etc.

New Locking Arm holds Puller on your work

Send for Bulletin D. Puller Arbor Press, etc.

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Wrecking Truck

In a moment you raise the car with this lever, then strap the Tongue in place, and away you go. Hundreds of garages are now equipped, and the way they bring in their customers is a great surprise. One truck for front or rear. Let us send you our literature. You need it.

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Bulletin No. 41

JOS. C. GOREY & CO.

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31 x 4	5.00	37 x 4½	8.50
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31x4	11.95	13.10	36x4½	18.45	20.45
32x4	12.45	13.45	37x4	18.95	20.95
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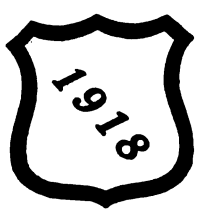
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POWER

The power behind your car is no greater than the purity of the oil or gasoline with which you supply it.

If you want speed and power, get your gasoline and oil supply from the Bowser System.

You'll be surprised to see how much better your car performs. The Bowser filters scientifically every drop of gasoline that goes to the motor; does away with bothersome carburetor and motor troubles. Keeps the power in gasoline, protects oils from grit and other injurious matter, and insures accurate measure.

S. F. Bowser & Co.
Incorporated
Fort Wayne, Ind.



It pays to always look for the

BOWSER

Oil and Gasoline Storage System

Bowser Systems store gasoline underground where it is protected from deterioration, evaporation or danger of explosion. Keep it at an even temperature the year 'round. Built for any capacity — any requirement.

Sales Offices in All Centers

Representatives Everywhere

District Representatives

The manufacturer of a well-known automobile accessory will have several desirable District Agencies available very soon. Established business with jobbers and garages awaits a few high-grade men with moderate capital and the ability to create and maintain aggressive selling organizations. Possible curtailment in automobile production means greater demand than ever. Our National advertising and liberal dealer helps will get this business for you.

Address Box 12, Accessory Manufacturer, care of Motor World, Mallers Building, Chicago, Ill., for particulars.

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This is the Getting-in-on-the-Ground-Floor Day in Chalmers

Most men who have made money have not made it in a hurry. But most of them will tell you they got in on the ground floor.

Here is the Chalmers now being built by Maxwell men, now being guided by Maxwell plans, now being financed by Maxwell money.

Ground floor time? Yes.

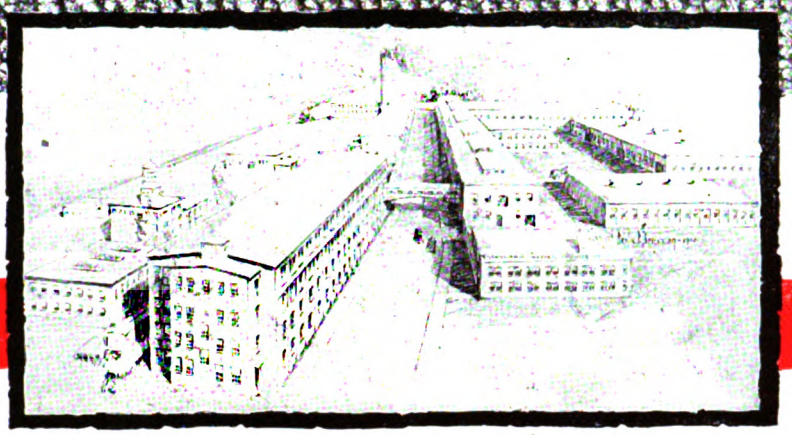
For those plans that have made Maxwell dealers prosperous as these figures show:

Maxwell dealers MADE *in 1913-1914 over* $2,500,000
Maxwell dealers MADE *in 1914-1915 over* $4,700,000
Maxwell dealers MADE *in 1915-1916 over* $8,000,000
Maxwell dealers MADE *in 1916-1917 over* $12,000,000

are going to win for Chalmers dealers, just as sure as the sun is going to rise tomorrow.

Already the movement towards Chalmers has begun. You may wake up some fine morning and find your strongest competitor has the Chalmers account.

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EVERY facility for the production of quality goods is found in this factory—the largest and most complete one devoted to the manufacture of brake and clutch linings.

STANWAL

BRAKE LINING AND CLUTCH FACINGS

The fact that Stanwal is a product of the Standard Woven Fabric Company is sufficient proof of quality. Back of every foot of Stanwal stands an organization skilled through long experience in the manufacture of friction materials.

STANDARD WOVEN FABRIC CO.
WALPOLE, MASS.

New York Branch and Export Office, 1834 Broadway
Chicago Branch Office, 1430 Michigan Avenue
Detroit Branch Office, 306 New Telegraph Building
Philadelphia Branch Office, 406 Colonial Trust Co. Building

OTHER STANWAL PRODUCTS

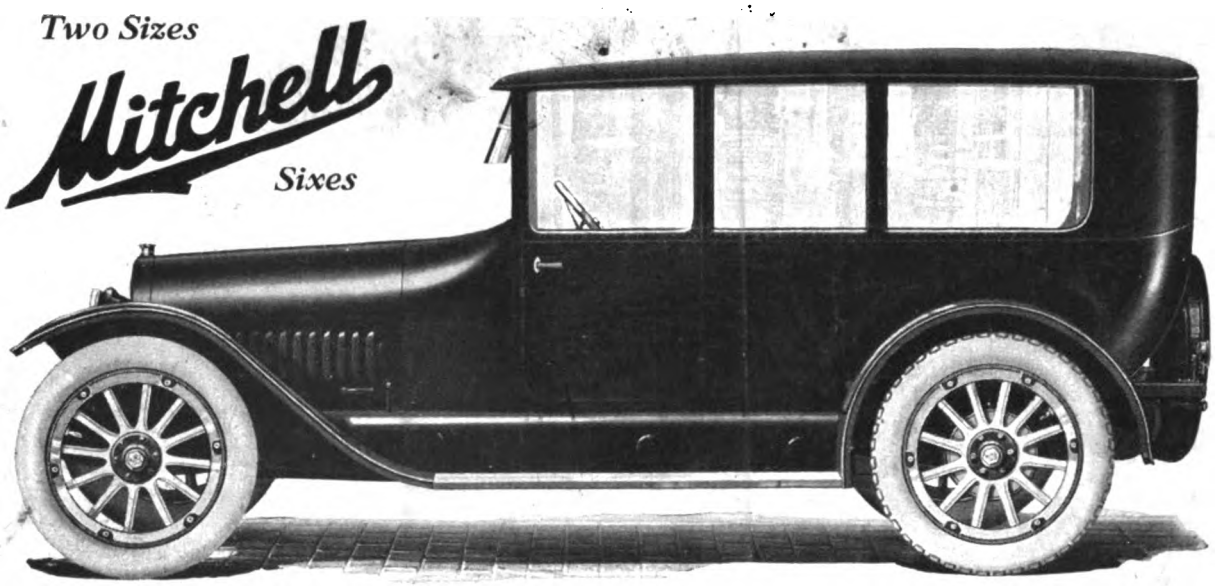
Multibestos Brake Lining and Clutch Facing
Stanwal Friction and Insulating Tapes
Splicing Compounds
Cable and Specification Tapes
Tire Tapes
Moulded Rubber Goods
Stanwal Matting
Stanwal Rubber Heels
Stanwal Fiber Soles

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Two Sizes

Mitchell

Sixes



Year-'Round Cars

With Many New Conceptions

We have worked out some new ideas in Convertible Sedans and Coupes. One is the Club Sedan—along the ideas of Club Roadsters. Note that we have a Sedan now, and a Coupe and Club Roadster in both sizes of the Mitchell. So these types are offered in the Mitchell line at vastly differing prices.

19 New Body Styles

A YEAR ago we occupied our own new body plant. All Mitchell bodies are now built in our shops, under Mitchell efficiency methods. The saving is enormous. It has enabled us to add 25 per cent to the luxury cost of Mitchells.

In this new plant our finish coats are all fixed by heat. Thus we make the Mitchell luster vastly more enduring.

Our body designers came from famous Eastern body-building plants. Now they design for Mitchells only, so our bodies are exclusive.

Then, because of this mammoth body plant, we are able to multiply our body styles. The latest Mitchells are built in 19 new designs. So the buyer finds in the Mitchell line any body style he wants.

So the Mitchell now offers two sizes of sixes.

It offers two basic prices, wide apart. And it offers every body style that anybody wants. All with many extra features. All with luxuries which are rare. All built to the Mitchell extreme standards of strength. And all with shock absorbing springs which have never yet been broken.

Those are some interesting things you will find in the Mitchells now.

Two Sizes

$1525 MITCHELL C-42

— a roomy 7-passenger Six, with 127-inch wheelbase and a highly developed 48-horsepower motor.

Three-Passenger Roadster, $1490
Club Roadster, $1560 *Sedan, $2275*
Cabriolet, $1960
Coupe, $2135 *Club Sedan, $2185*
Also Town Car and Limousine

$1250 MITCHELL D-40

— a 2 or 5-passenger Six on similar lines, with 120-inch wheelbase and a 40-horsepower motor.

Club Roadster, $1280
Sedan, $1950 *Coupe, $1850*

All prices f. o. b. Racine.

MITCHELL MOTORS COMPANY, Inc., Racine, Wis., U. S. A.

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TL
M54
V.54
no.2

MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 2

New York, January 9, 1918

Ten cents a copy
Two dollars a year

The Miller Uniform Tire Idea

And What It Means To Miller Dealers

FIRST, Miller builds uniform tires—tires that give 99 per cent uniform mileage. Not more than one out of a hundred comes back for adjustment. This matchless uniformity of Miller Tires assures you uniformly satisfied customers. For c[illegible] having used Miller Tires, no motorist will again take a chance with other makes.

Just as Miller Tires are uniformly excellent, so is Miller advertising steady—consistent—convincing. Full page advertisements in leading national publications tell the wonderful story of Miller uniformity to motorists the world over.

Nor does Miller stop with a tire of unequaled perfection and with a national wide advertising campaign. It gives you service that ties up your name and your store to Miller uniform quality and to the thousands of dollars that are being spent for you in national advertising.



Miller UNIFORM MILEAGE Tires
GEARED-TO-THE-ROAD

A recent survey of tire conditions has just been completed. The inside facts revealed by 25,349 answers from dealers, distributors, motorists and others being checked, compiled and charted in one big volume.

If you are contemplating making a change, and are interested in connecting with a proposition such as Miller has to offer, send in your name today and reserve one of these books. The number is limited. So, if you want to be sure to get a copy, send in your name today. It will be sent free.

THE MILLER RUBBER COMPANY
Dept. A-4, Akron, Ohio

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UTILITY
Protected Foot Rail


HEATER

Sells to

Keep the Driver Warm



Watch for the Gold Plated UTILITY Protected Heater in the Anderson Six at the Shows.

Gentlemen who drive their own cars know what it is to be all but frozen to the wheel in cold winter weather. It is an experience they would rather not repeat.

And their chauffeurs—if they employ them—are less efficient, more liable to get into trouble, when their hands are cold and they are uncomfortable all over.

The new UTILITY Front Seat Heater *keeps the driver warm.* It operates whenever the car does, and it solves the problem of comfortable driving in winter that all manner of robes, coats and gloves have failed to solve. A big seller for dealers—and the price is low. Rounds out the line of UTILITY Protected Heaters with *a new necessity that sells.*

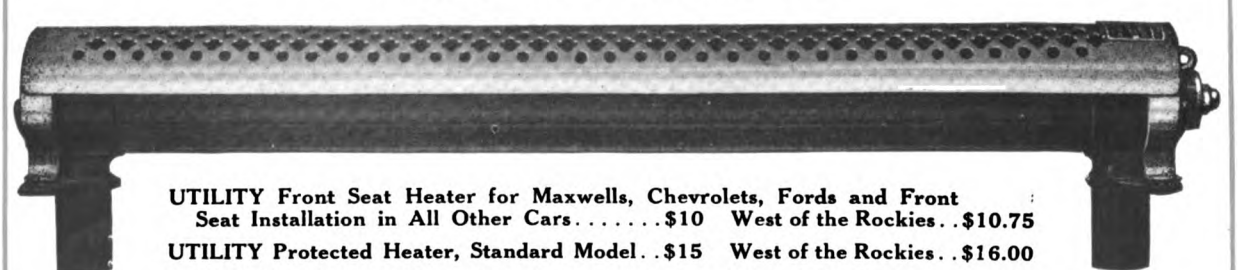
Order from your jobber. He has UTILITY Protected Heaters *for all cars* on hand.

Write for unusually attractive literature to send to your UTILITY prospects.

Ask for combination counter-display wall-hanger.

HILL PUMP VALVE COMPANY

Archer Ave. & Canal St., Chicago.
Eastern Sales Office: 149 Church St., New York City.
Manufacturers of Famous UTILITY Auto Specialties.



UTILITY Front Seat Heater for Maxwells, Chevrolets, Fords and Front Seat Installation in All Other Cars.....$10 **West of the Rockies..$10.75**

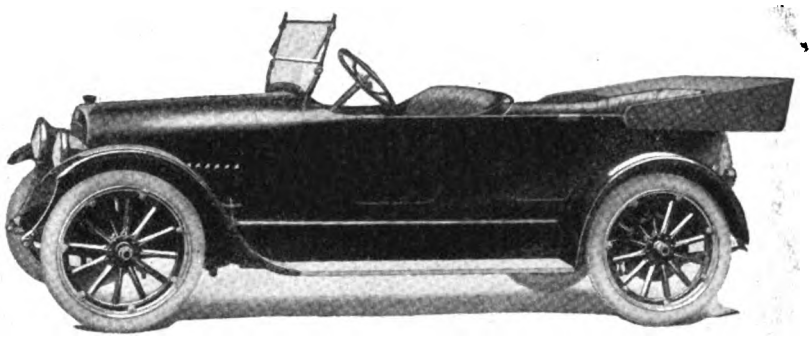
UTILITY Protected Heater, Standard Model..$15 **West of the Rockies..$16.00**

UTILITY Jr. Protected Heater for Fords....$7.50 **West of the Rockies.. $8.00**

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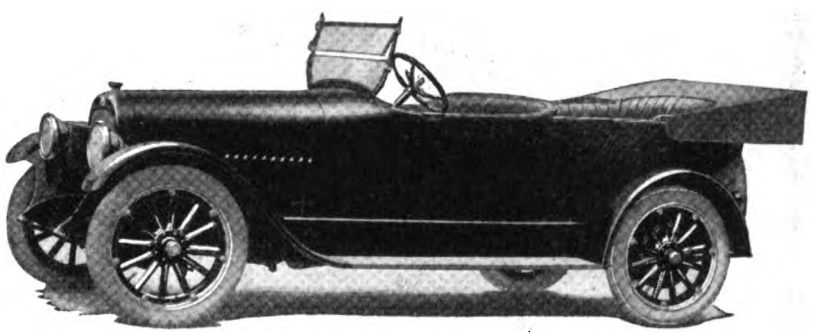
THE NEW STUDEBAKER CARS

Beautiful in design
Thoroughly modern
Mechanically right



The FOUR, $895

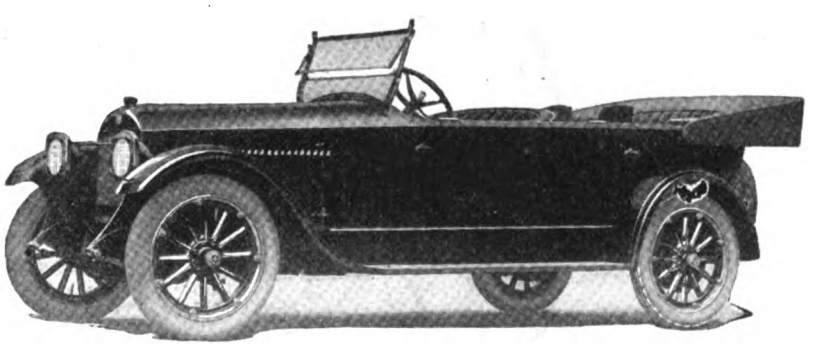
3½ x 5 in. Motor, 35 h.p.; 112 in. Wheelbase; 32 x 3½ in. Tires.



The LIGHT-SIX, $1295

3½ x 5 in. Motor, 50 h.p.; 119 in. Wheelbase; 32 x 4 in. Tires.

IN this New Series 19, Studebaker Dealers now have *a complete line* in both size and price-range, embracing the most modern and desirable types of the day — the product of one of America's greatest manufacturing organizations. Dealers who measure up to Studebaker standards and who are looking for a permanently profitable connection are invited to write for full information and open territory.



The BIG-SIX, $1695

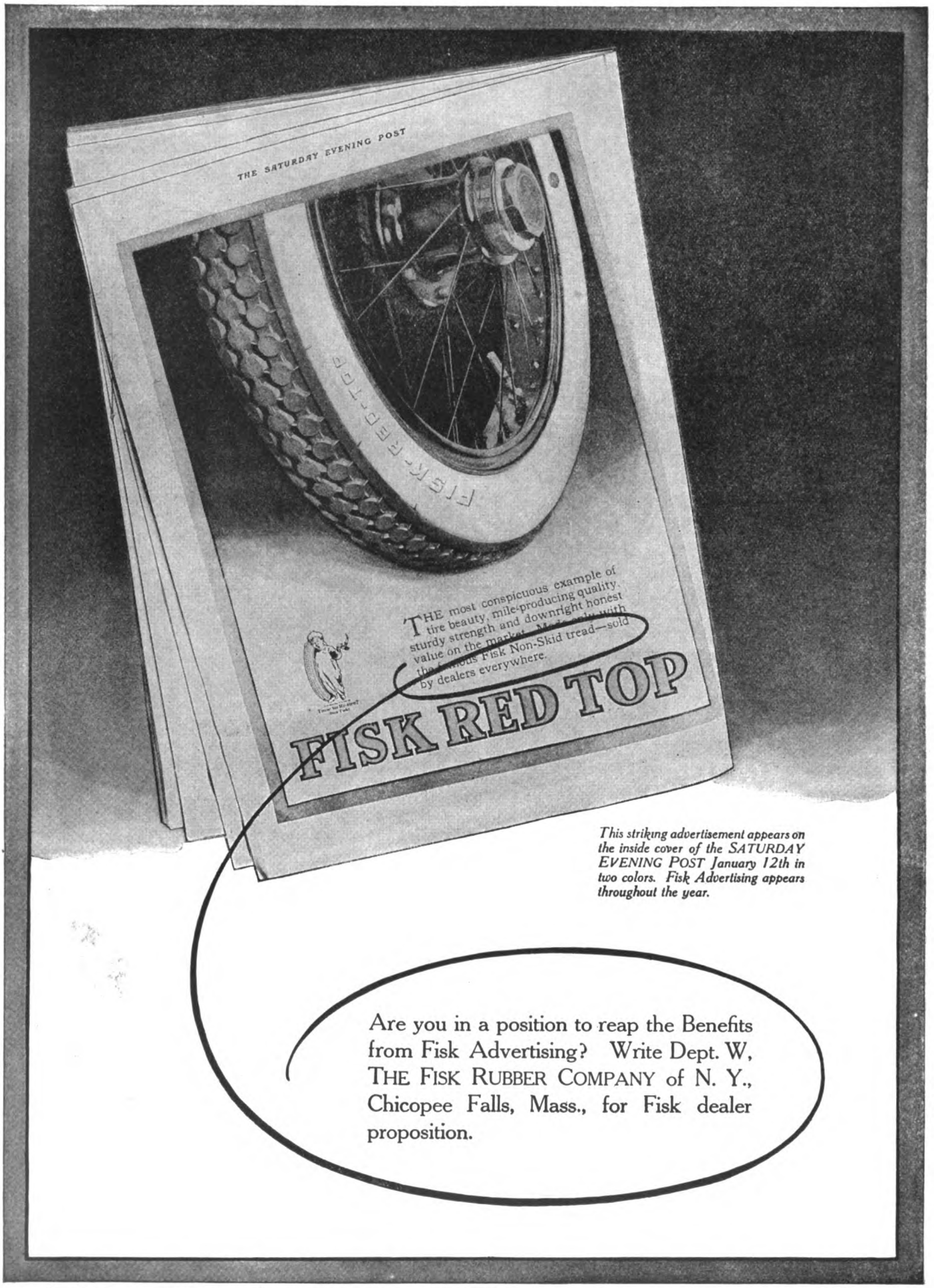
3⅞ x 5 in. Motor, 60 h.p.; 126 in. Wheelbase; 33 x 4½ in. Tires.

STUDEBAKER

Detroit, Mich. South Bend, Ind. Walkerville, Ont.

Address all Correspondence to South Bend

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This striking advertisement appears on the inside cover of the SATURDAY EVENING POST January 12th in two colors. Fisk Advertising appears throughout the year.

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

The Class Journal Co.

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Horace M. Swetland, President
W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager

Business Department
Charles B. Shanks, Manager

Editorial Department
David Beecroft, Directing Editor
Stanley P. McMinn, Managing Editor
Ray W. Sherman, Editor
S. T. Williams

Branch Offices
Chicago—Mallers Bldg., 59 East Madison St., Phone Randolph 6960
Detroit—95 Fort Street, West, Phone Main 1851
Cleveland—516-517 Swetland Bldg., Phone Prospect 167

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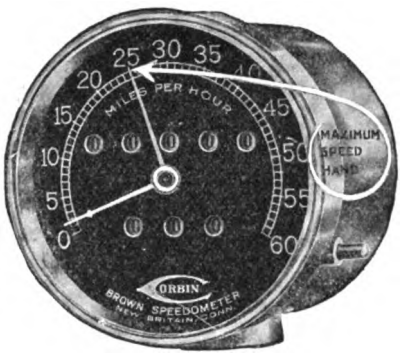
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Accurate Speedometer Service

THE

CORBIN-BROWN SPEEDOMETER

In every department of speedometer service this famous instrument functions with the maximum of efficiency. Its record is accurate because it is built on a principle that cannot be anything else but accurate. At all times and in all places you can place absolute confidence in the record of the Corbin-Brown. This is the first and most important consideration, but there are others.

The Corbin-Brown is durable. Its mechanical construction is extremely simple and strong. The Corbin-Brown does not break down on the job.

Furthermore, the Corbin-Brown is a convenient speedometer; its dial is black and its numerals clear and easily read.

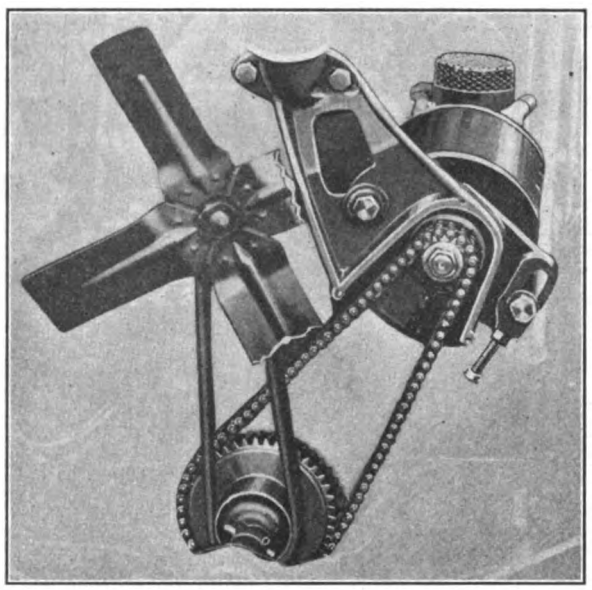
The Maximum Speed Hand is an extra feature. This hand registers the highest speed attained and stays at that point until reset at zero, which can be done at any time. Convenient, efficient.

Investigate the Corbin-Brown.

Catalog on request.

The Corbin Screw Corporation
THE AMERICAN HARDWARE CORPORATION, Successor
NEW BRITAIN, CONN.
Branches: New York, Chicago, Philadelphia
Makers of
Corbin Duplex Coaster Brakes for Bicycles.

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For 1918 The New

Genemotor

Trade Mark

In our space "D-59" at the New York Automobile Show, we will present the **New** 1918 GENEMOTOR.

There you can inspect the lightest—strongest—most compact—efficient starting and lighting system for Ford Cars on the Market.

Jobbers and Dealers should look up "D-59" space. You will want the agency with its wonderful money-making opportunity. Let us mail you a catalogue now.

Built by the General Electric Co.

A. J. Picard & Co., Inc., New York

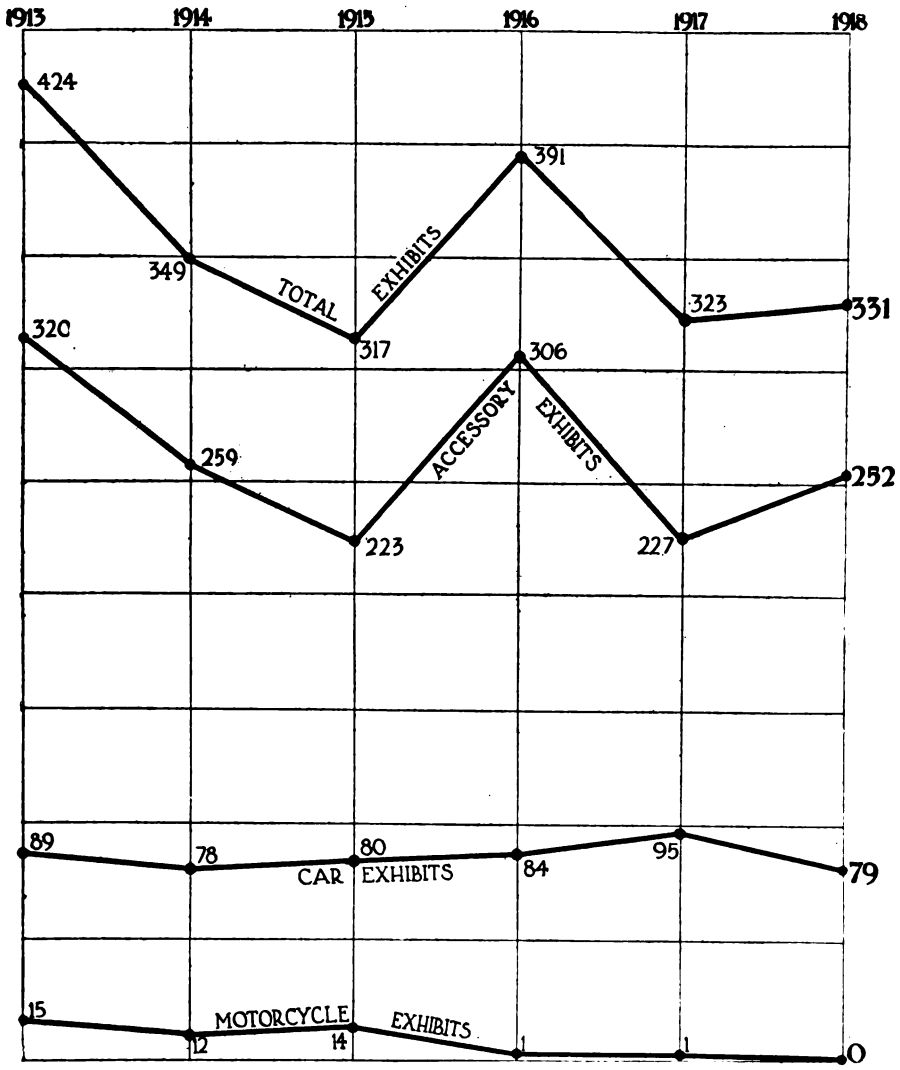
General Distributors **61st St. at Broadway**

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MOTOR WORLD for DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV New York, U. S. A., Wednesday, January 9, 1918 No. 2

1918 New York Show A Mighty Inspiration



This chart shows the number of exhibits for six years. Note how the "total exhibits" curve for this year rises above that of last year

More Exhibits Than Last Year—Cars Made More Salable—Progress the Keynote

NEW YORK, Jan. 5—The eighteenth annual New York show, which opened at 2 o'clock this afternoon in Grand Central Palace, is the best answer that could be given to those who have asked, "What has happened and what is going to happen to the motor car industry?"

The show carries a mighty message of progress and optimism. It exhibits the industry in some new clothes and quite a lot of the clothes that many people might expect would have to be discarded.

There are more exhibitors than there were last year. As much space is taken up as at previous shows; the entire four floors of the Palace that were used in former exhibitions are just as crowded with as much merchandise as ever before, if not more so.

There is progress in engineering and design. The styles in bodies follow the fashion, just as they always have, and there is newness everywhere.

Throughout the show service flags hang in the exhibits, showing

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the number of men the different factories have sent to war. Many of the new features in the cars are in accord with wartime life, which even shows itself in new body designs. Features of economy are apparent everywhere. Engineers and designers have made great efforts to make it cheaper for the car owner to operate his transportation vehicle.

The dealer who has been worrying about the future of the industry he represents should see this show. It will put new hope into his heart and enable him to go back home with new ideas and thoughts and make money. It will imbue the man who has been inclined to quit with a new spirit and send him forward along the pathway he never should have forsaken.

War Atmosphere

The atmosphere of the times is seen in the decorative plan. On the lofty columns are flags of America and her allies. Where wall decorations have been needed there are paintings of modern war scenes.

War has laid its hand upon the industry, but has done nothing except to refine it and send it more efficiently along the path of progress it has traveled since its first day.

There are ten or a dozen new cars, shown by Overland, Scripps-Booth, Owen-Magnetic, Olympian, Crow-Elkhart, Moore, Templar, Hupmobile, Liberty, Elgin and Anderson.

The new Overland four, which is to sell for less than $500, is surrounded by a crowd. Hupmobile has an entire new line of inclosed vehicles. Scripps has a new six and there are valve-in-the-head designs shown by a half dozen who never had them before.

These new cars are filled with proper selling features for these times. Every change in new design has been effected with a view to making the cars more attractive to wartime purchasers, but with all these alterations makers have not neglected to add new styles in bodies and to fill the show with beautiful colored creations.

Engineers have realized that the car buyer looks now at upkeep perhaps more than at the first cost and they have introduced many features of upkeep economy.

There are hot-spot manifolds which give greater gasoline efficiency; oil cups have replaced many grease cups because the owner can better operate them; inside drives are attractive to the man who now drives his own car instead of having a chauffeur.

Economy Features

Separate cylinder heads, notably on the Cadillac, make cylinder cleaning less expensive. More body space has been secured on shorter wheelbases. There is more pressure feed lubrication. Thermostatic control is more prevalent.

Several additional makers have adopted Hotchkiss drive. Brackets and fasteners are made of lighter construction. More cooling space has been provided around the cylinders. Carbureters have been fitted with priming devices which make starting easier and more economical.

Control members are made more accessible to the owner-driver. Transmissions include more anti-friction bearings. Brake linkage has been made better. Upholstery springs have been improved and tops are easier to operate and built to wear longer.

Windshields are more rigidly fastened. Divided front seats have been eliminated in many cases in order to make bodies more rigid and lasting. Vacuum feeds have saved the space that the cowl tank used to take and all the way through the cars there is a great firmness of construction.

Cars Better Buys

All those things make the car a better buy for the man who perhaps looks longer among cars these days before he buys.

War lines predominate in new body designs. The sides are straighter, hoods are higher, the top line is more nearly horizontal and incorporates a bevel extending down from the top, sometimes several inches. These lines are found in the Owen, Cole, Winton, Case, National, Stearns, Velie, Marmon, McFarlan, Silver Specials and others.

The cars are lower in appearance, the seats are higher, and in inclosed models the glass area is greater. Designers of inclosed cars have sought to eliminate rattle by anti-rattle devices.

There are quite a number of new things in the four-passenger designs, both touring and sport models, all of which have snappy lines that accord with the spirit of the times.

Nothing could look more warlike than the disk wheels shown on other pages of Motor World.

In colors there is almost everything one could think of; maroons, olives, grays, greens, blues, slates, canary reds and yellows, whites, pea greens and tans.

There are four electrics—Detroit, Milburn, Ohio and Baker R & L, some of which imitate gas-car lines.

There is an air of business throughout the show. The accessory people, on the two top floors, believe 1918 will be a big year. With some of them December is the biggest month they have ever had. Jobbers are coming to the show in great numbers. They foresee an enormous business in the supplies and accessories that must be purchased by the nearly 5,000,000 cars in operation in America and look forward to a big business among dealers.

Hotels Filled

Hotels are filled with headquarters of manufacturers, many of whom have striking exhibits of their products. The Champion Spark Plug Co. has erected a complete store front at the Astor.

Those who have seen the show have had their eyes opened. They have found that the factories, with all their war work and war sensations, have been going ahead with production and design. There is no indication of the much talked of curtailment of a few weeks ago. The whole idea is one of that great necessity — transportation. The industry is still producing its car but with perhaps, a new idea of its necessity as a factor in world progress.

A few hours in the show are a great inspiration. Dealers who have not seen the New York show should see it if they can get there; if they can't get here they should see the Chicago show. They should see all the shows they can see this winter, and those who don't already know it should learn how essential a factor to-day is the industry they have helped create and should continue to sustain.

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Government Gives Word of Praise to Our Great Industry



Governor Charles S. Whitman of New York

He opened the New York show Saturday afternoon, Jan. 5, in Grand Central Palace, paying a tribute to the motor car industry. Below is the essence of his opening address

ALL of our wealth, our ingenuity, our enterprise, our labor and inventive skill, as well as our man-power, must be and is devoted to the service of our country. And, perhaps, there is no other one manufacturing industry that may contribute more to the winning of the war than the one that is here represented.

The present world-wide conflict has demonstrated the tremendous importance of this new method of transportation and the great service to the country rendered by those who are supplying for the use of our armies this absolutely indispensable means of locomotion.

The motor so far has played a rôle in the struggle such as even the most enthusiastic military man never dreamed of before. It is true, as has been said, that "this war will be remembered as a war of trenches and of motors."

When we realize how great is the contribution of those whose labor and capital, whose time, energy and enterprise are devoted to this industry, to the cause of National Preparedness and National Defense, in the great field of aviation as well as in that of transportation on land, we are justified in saying that those here at work are engaged in patriotic service.

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War Spirit Marks New York Show

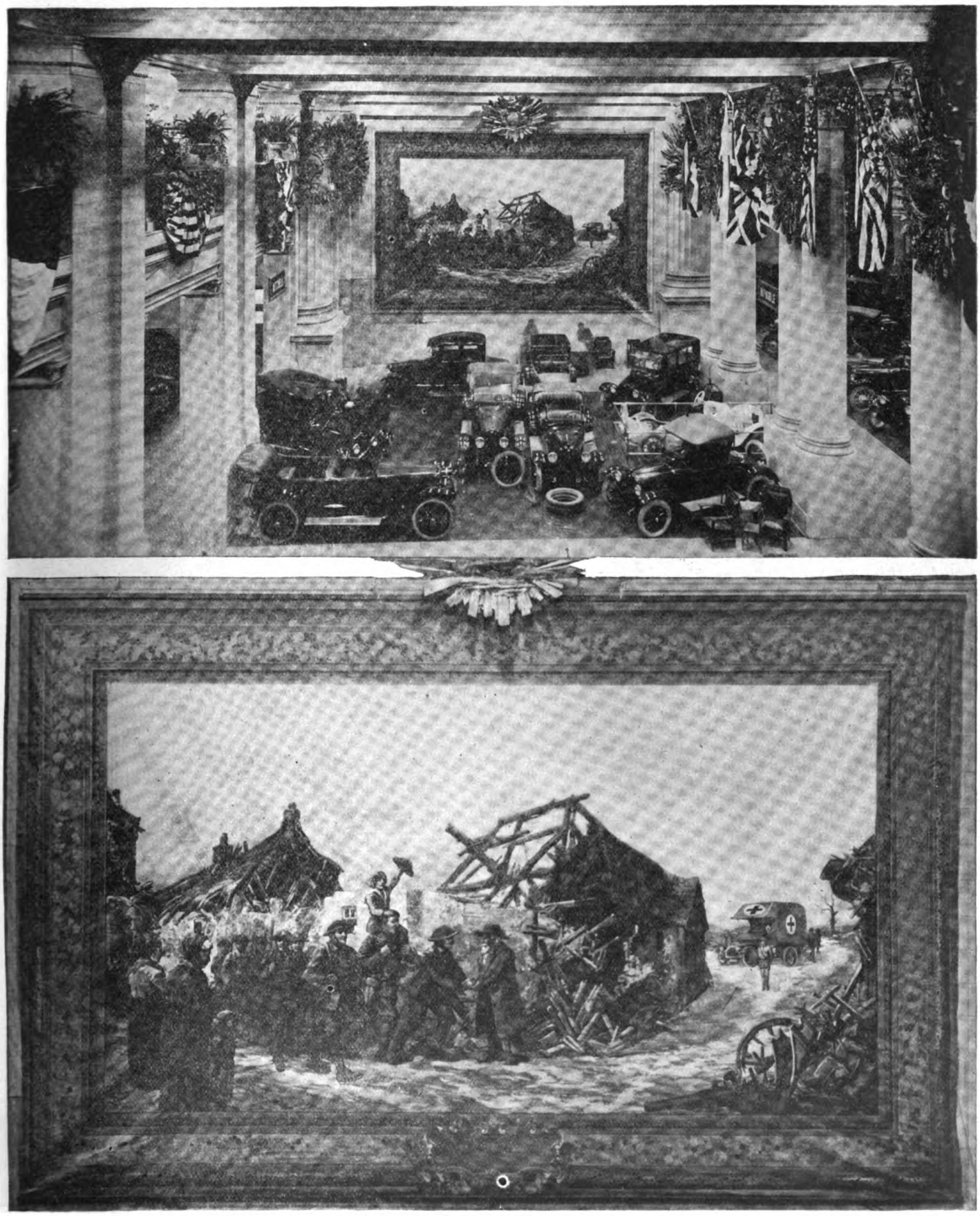
In looking down the main aisle toward the entrance staircase the pillars themselves suggest the mighty power of the industry



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"Transportation" Is the Big Idea

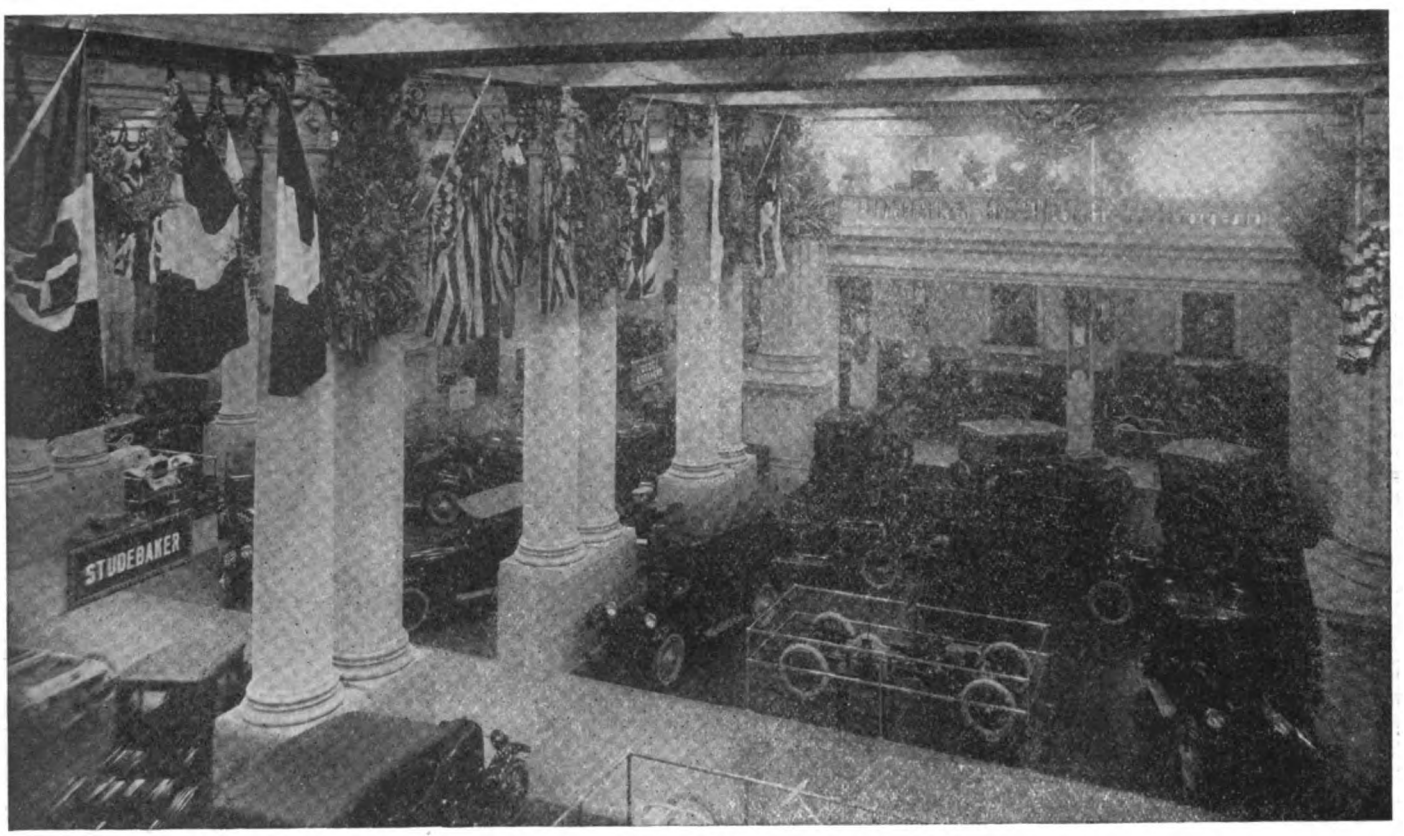
A glimpse across the Studebaker and Mitchell exhibits discloses the motor car close behind the men who drive back the Boche



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New Cars Draw the Public's Eye

The upper picture is of the Dodge display and the lower view is one obtained from many points by the throng of visitors

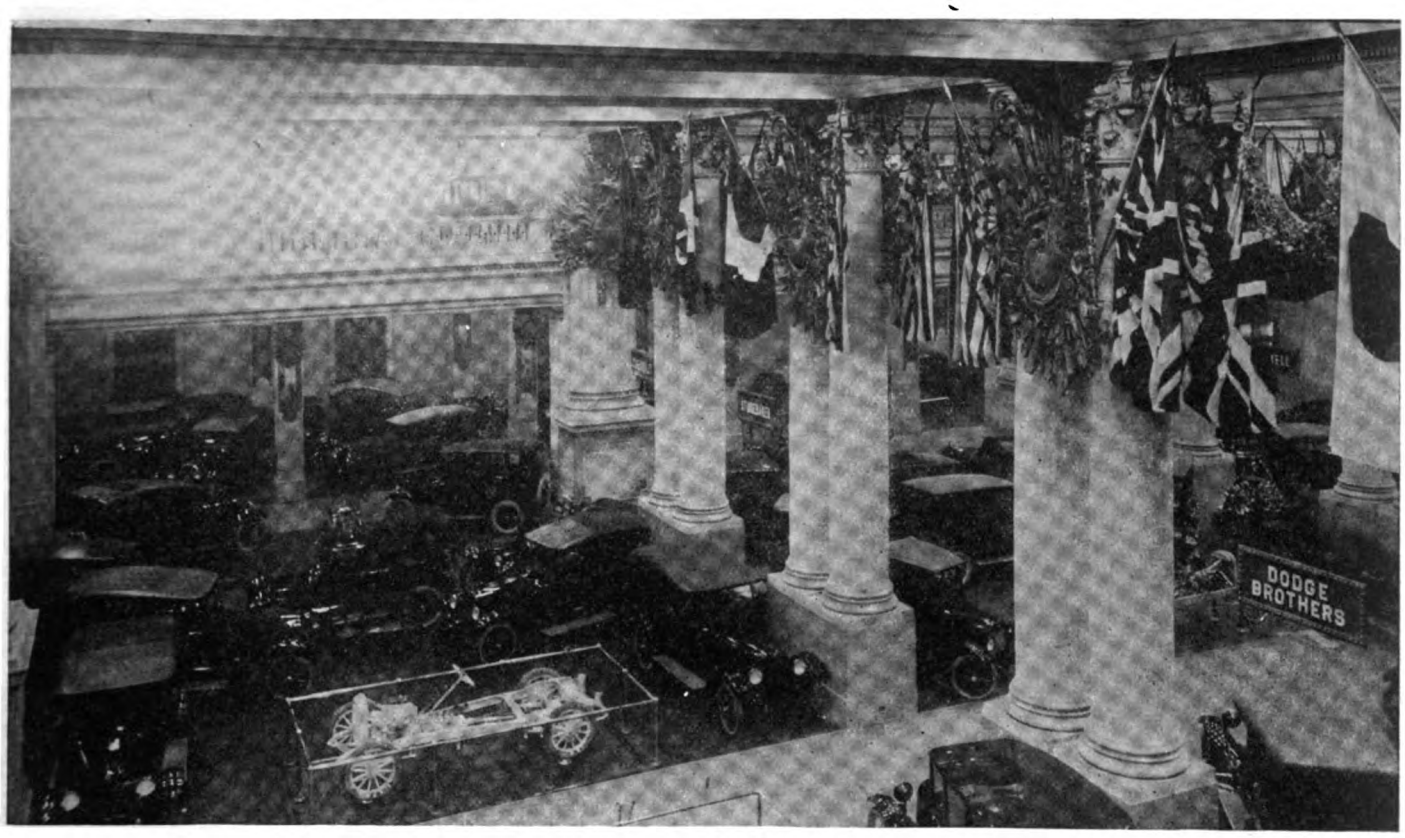




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Year Shows Engineering Progress

New Studebakers are seen in the upper photograph, while below is shown a glimpse of the Cadillac and Reo exhibits, as usual of great interest





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War—The Spirit of the Times

Is

Reflected in New Car Styles

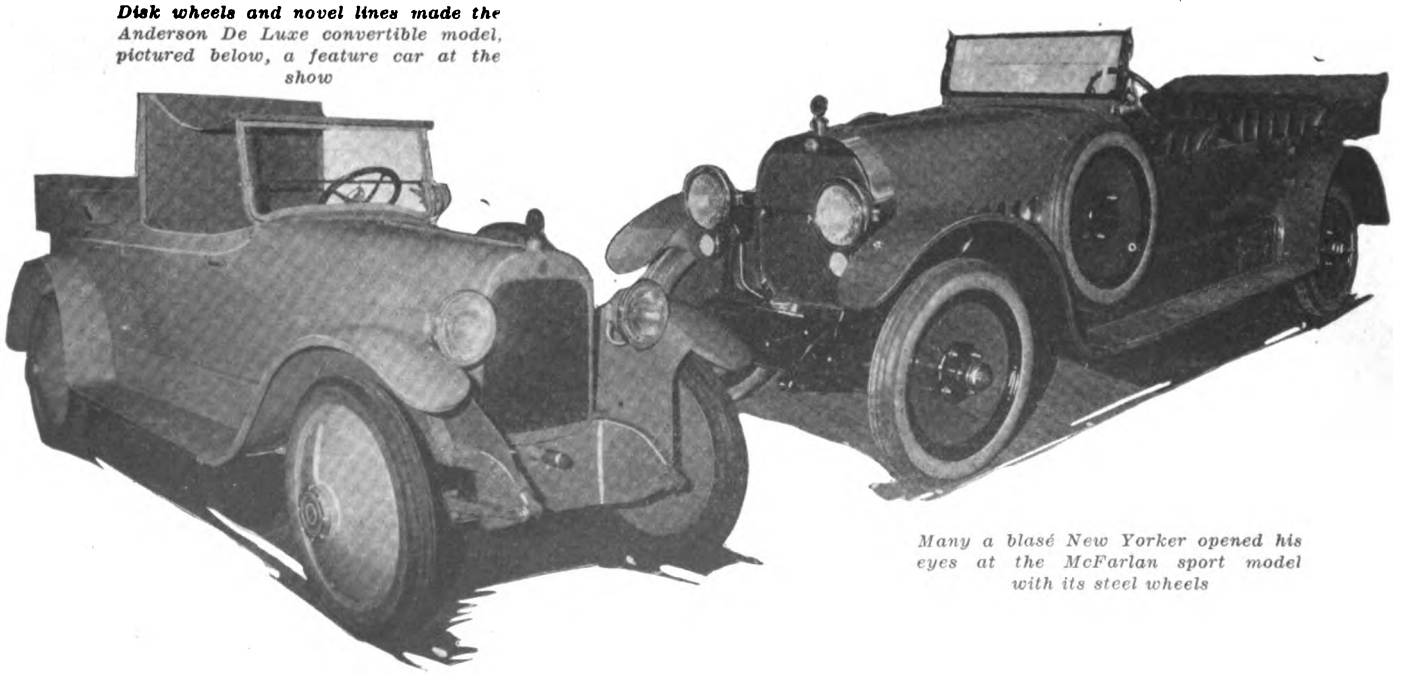
A MARTIAL spirit has invaded Grand Central Palace. Mars has waved his wand at the motor cars there and they reflect the spirit of the times. Straight, military lines mark most of the new cars. They are more business-like-looking than ever before. Curves are being done away with and fancy business finds no place in 1918 motor car fashions.

Throughout the show can be seen many little touches that all blend into the spirit of economy in car operation. But there is still a big trend toward newness and salability. The men who make the cars better sellers have been busy since the last show.

Instead of lengthening wheelbases engineers have found more room on the same wheelbase and have done many other skillful things. Everything has been done to make the car cheaper to run after it has been bought. But with all this business-like practice in design there are colors of many varieties and comfort features that should make this year's cars more popular than their 1917 predecessors.

Sport cars, designed after a long, low, rakish model, are numerous this year. They look as though they would slip through the air with less effort than ever before, and they will. One way to reduce gasoline consumption is to decrease wind resistance, and this the designers have tried very hard to do.

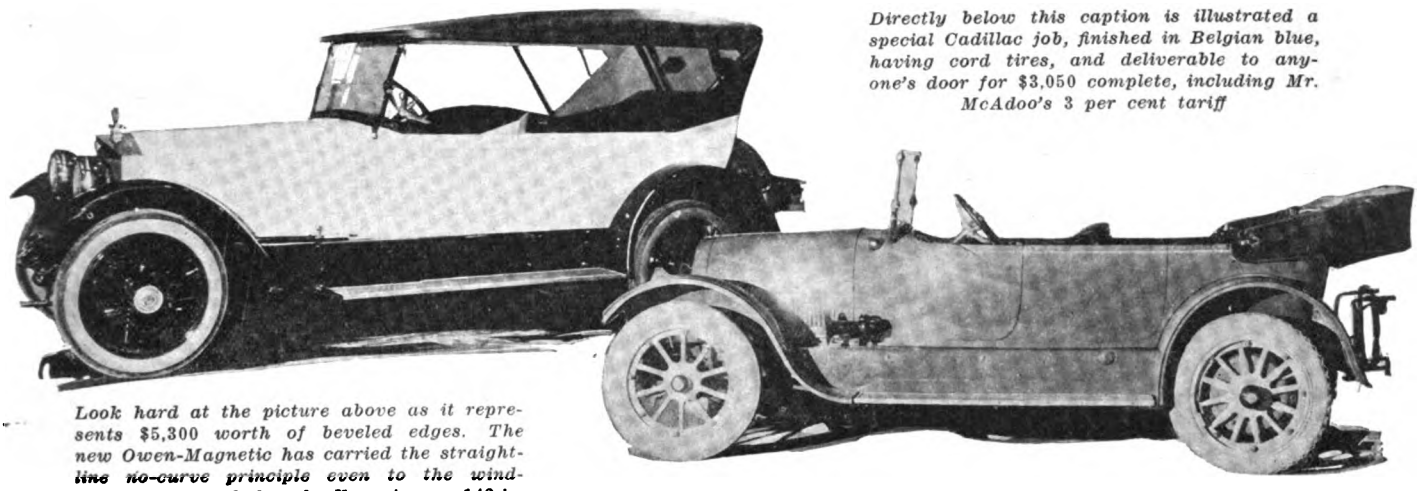
There are more wire wheels this year than ever before; a count soon after the show opened showed that some 95 models have them, as against only about 120 with the usual wood wheels. One of the features of the year is the coming of the steel wheel and the disk wheel. Look at the pictures at the bottom of this page and those on the opposite page and see if these new wheels do not give a decidedly military air to the new models.



Disk wheels and novel lines made the Anderson De Luxe convertible model, pictured below, a feature car at the show

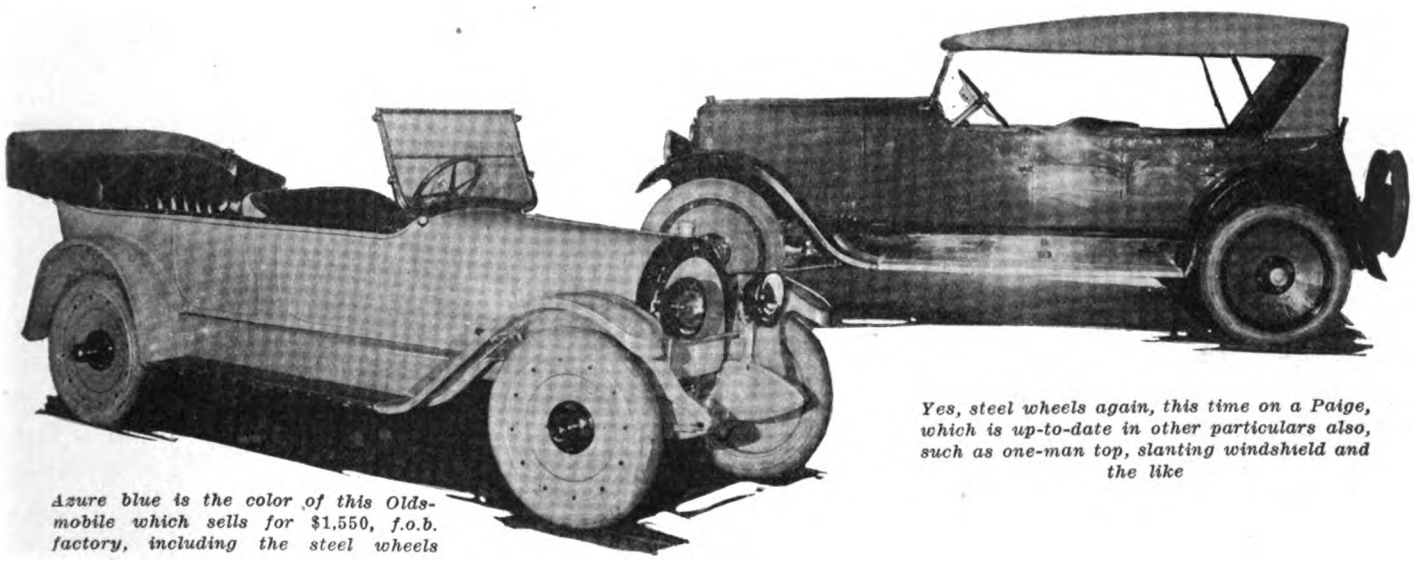
Many a blasé New Yorker opened his eyes at the McFarlan sport model with its steel wheels

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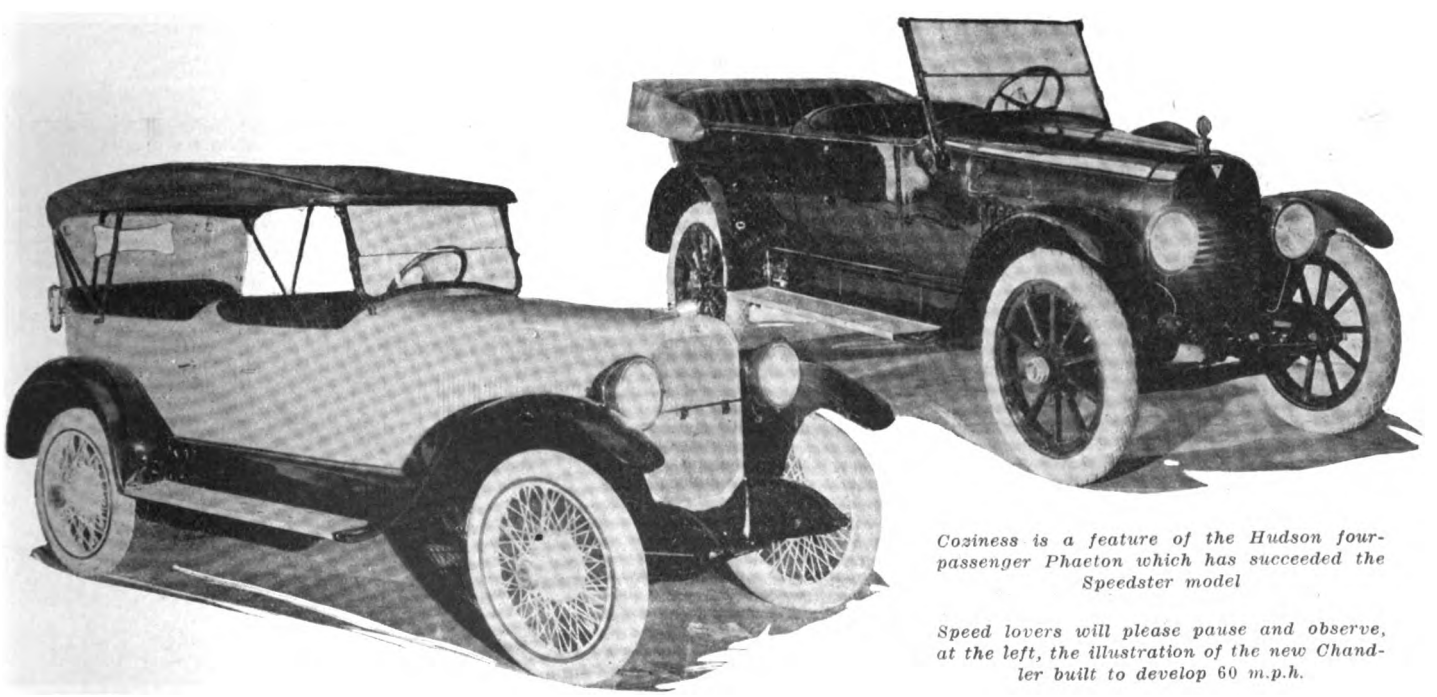
Directly below this caption is illustrated a special Cadillac job, finished in Belgian blue, having cord tires, and deliverable to anyone's door for $3,050 complete, including Mr. McAdoo's 3 per cent tariff

Look hard at the picture above as it represents $5,300 worth of beveled edges. The new Owen-Magnetic has carried the straight-line no-curve principle even to the windshield posts, and the wheelbase is now 142 in.



Yes, steel wheels again, this time on a Paige, which is up-to-date in other particulars also, such as one-man top, slanting windshield and the like

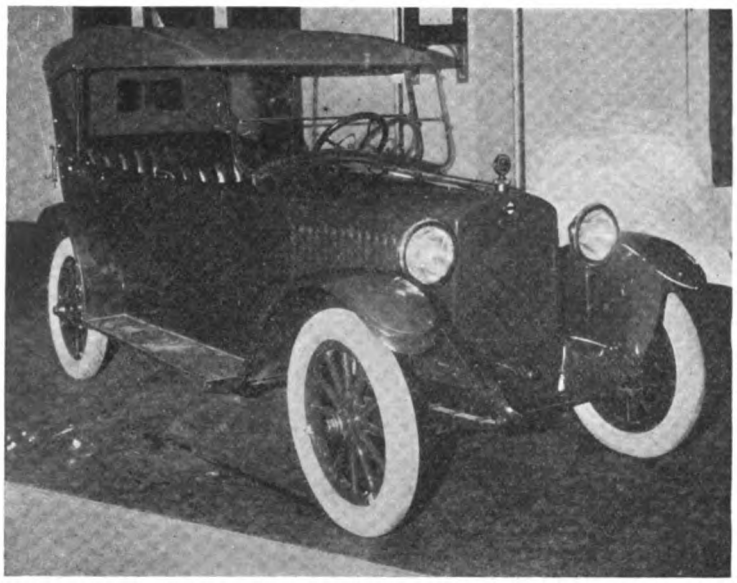
Azure blue is the color of this Oldsmobile which sells for $1,550, f.o.b. factory, including the steel wheels



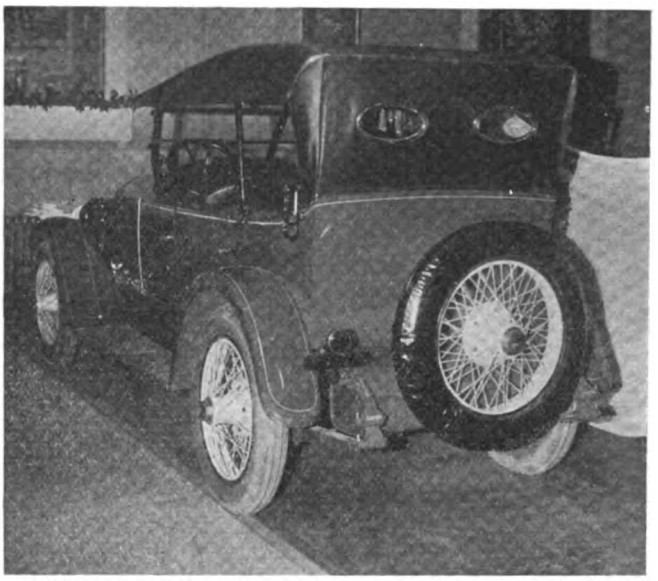
Coziness is a feature of the Hudson four-passenger Phaeton which has succeeded the Speedster model

Speed lovers will please pause and observe, at the left, the illustration of the new Chandler built to develop 60 m.p.h.

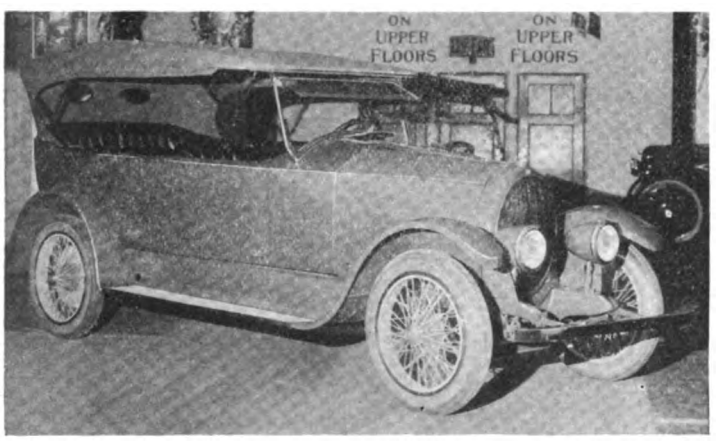
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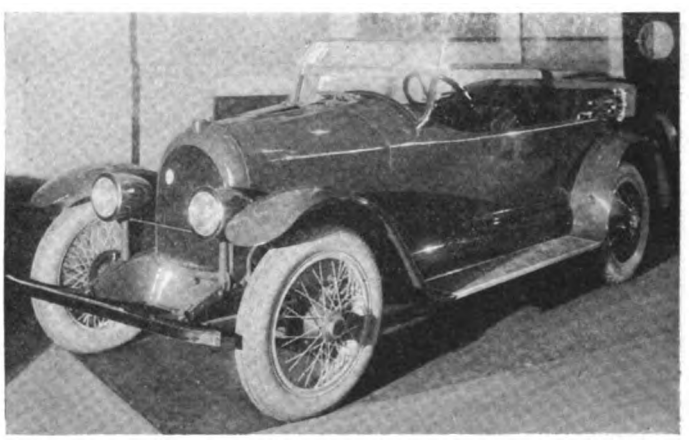
Military colors predominate in the design of the new Inter-State which has a khaki top, Twyman gray body, and Spanish brown leather upholstery. Deliveries on this model will begin about the middle of March



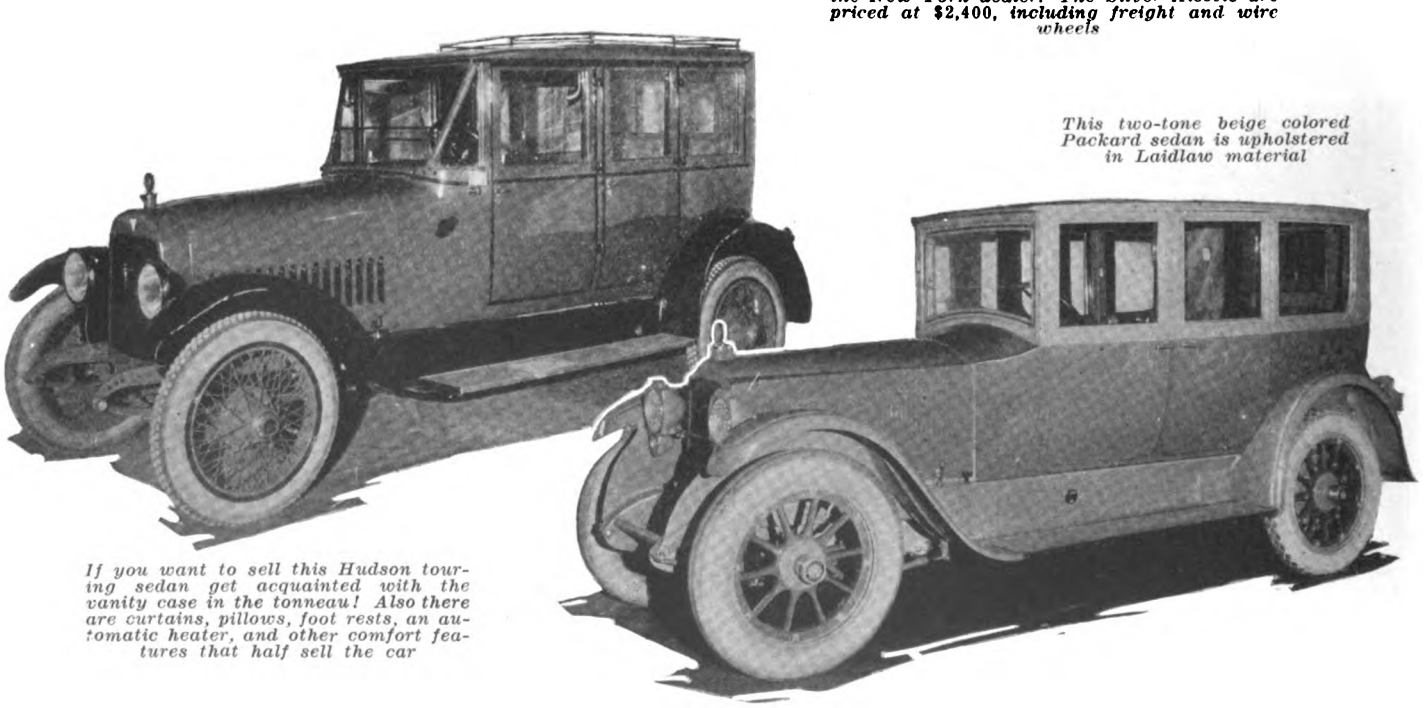
Probably this Cole tourster is turned bashfully away from the reader because it is a newcomer in the line. Its beveled edges, dark blue finish, and up-to-date appointments make it a very attractive job, selling at $2,395, f.o.b. factory. Note the firm, warlike rear lines



And here is the larger of the Silver-Appersons ready for immediate delivery in New York



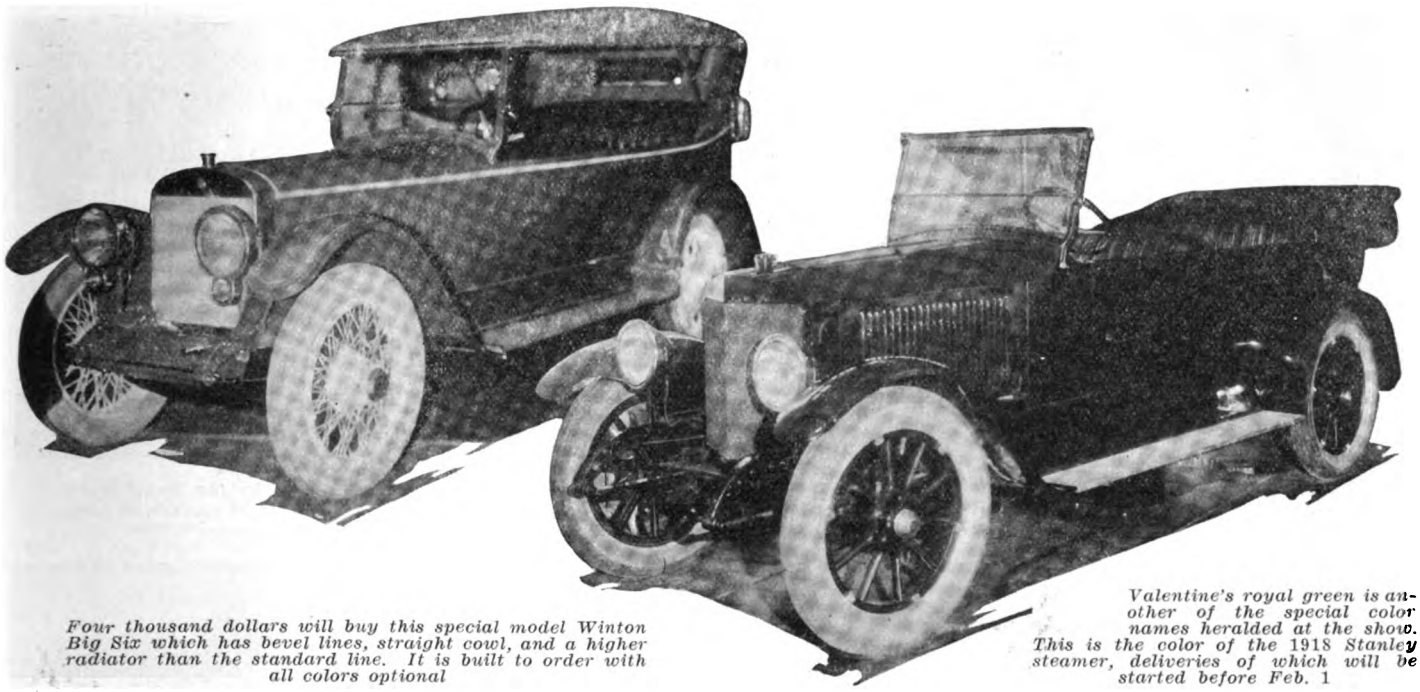
Here is the Kissel sport model with the special Silver body designed by C. T. Silver, the New York dealer. The Silver-Kissels are priced at $2,400, including freight and wire wheels



This two-tone beige colored Packard sedan is upholstered in Laidlaw material

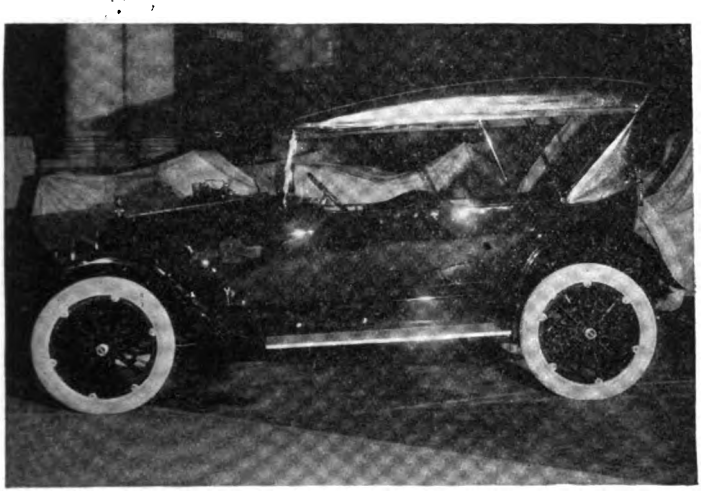
If you want to sell this Hudson touring sedan get acquainted with the vanity case in the tonneau! Also there are curtains, pillows, foot rests, an automatic heater, and other comfort features that half sell the car

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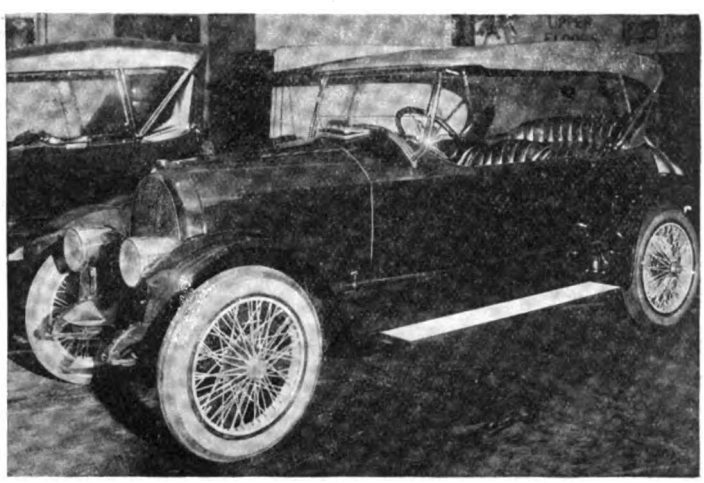


Four thousand dollars will buy this special model Winton Big Six which has bevel lines, straight cowl, and a higher radiator than the standard line. It is built to order with all colors optional

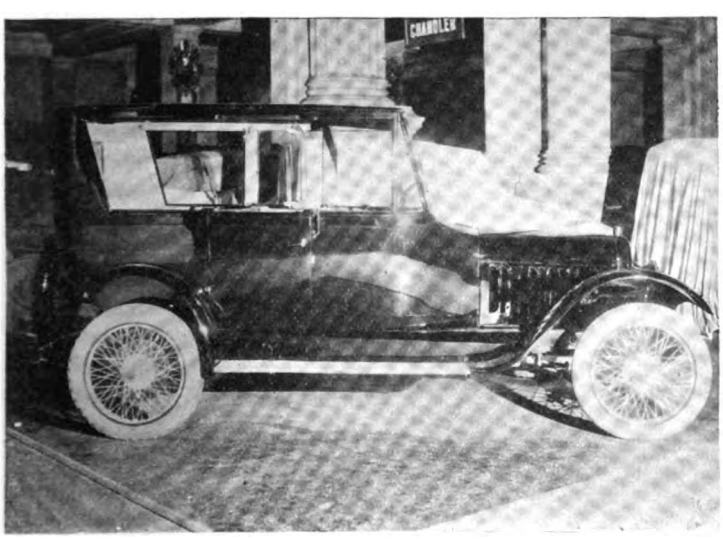
Valentine's royal green is another of the special color names heralded at the show. This is the color of the 1918 Stanley steamer, deliveries of which will be started before Feb. 1



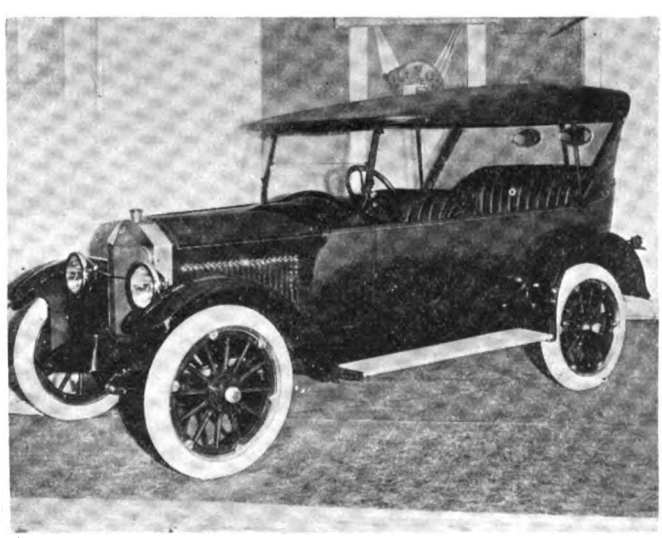
Here is the new Chevrolet 8-cylinder model with Chevrolet green body. The motor is a valve-in-head type with balanced crankshaft and flywheel; and the water pump is located at the top front part of the motor



Another Silver body. There is a single wide door on the left side of the body which admits passenger to either front or rear seats. The driver's seat slides on a track, thus giving plenty of leg room

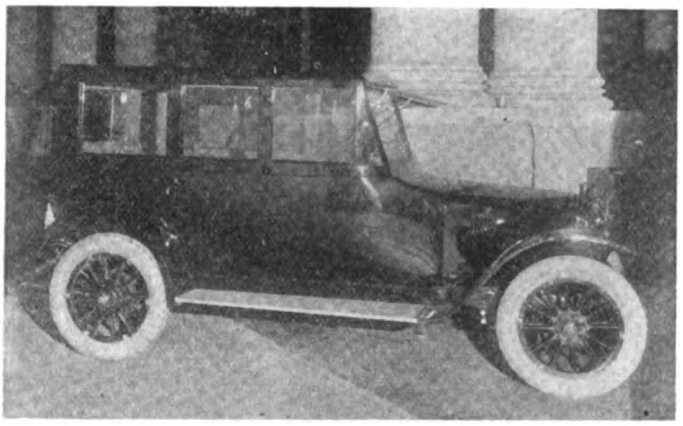


Among the line of Chalmers exhibited at the show were several smart closed body models like the one pictured above

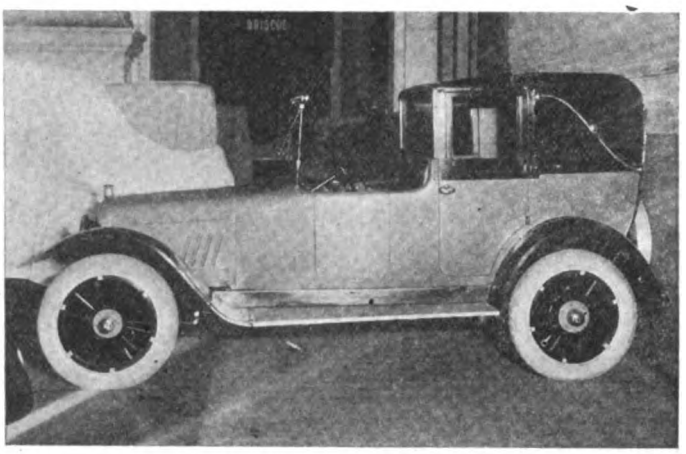


Scripps-Booth was among the many cars which had individual colors, this model being a Delft blue. It has a six-cylinder Northway motor

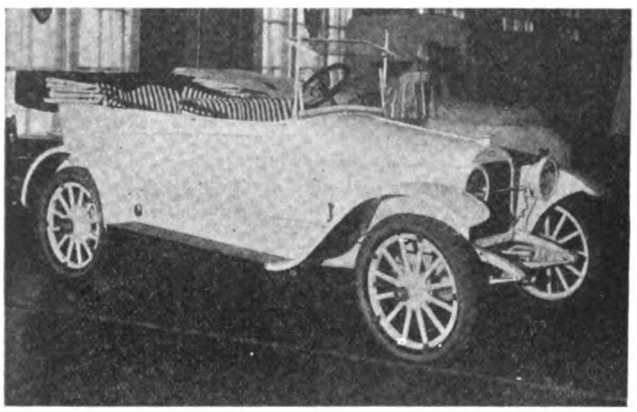
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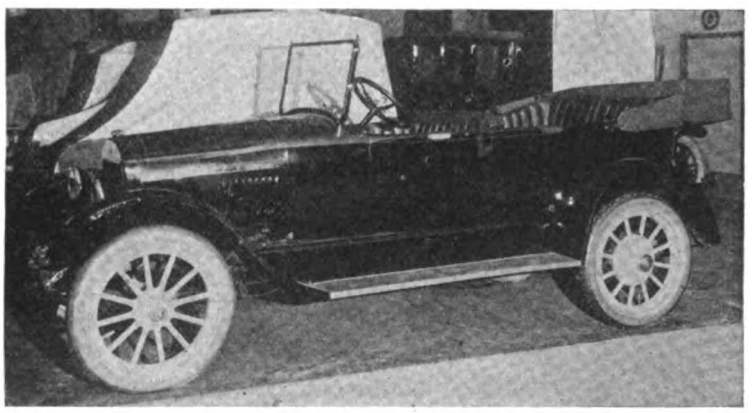
Delivery on the new Hupmobile sedan which carries the beveled edge idea into the enclosed car line will begin about the middle of July



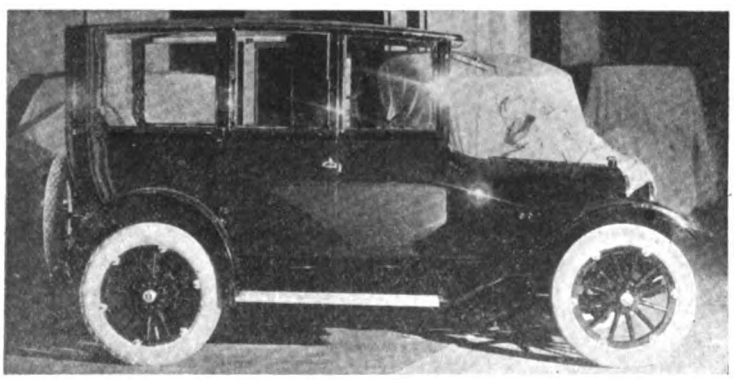
An entirely new line was exhibited by the Hupp Motor Car Co. at the show, including this town car which made an effective appearance



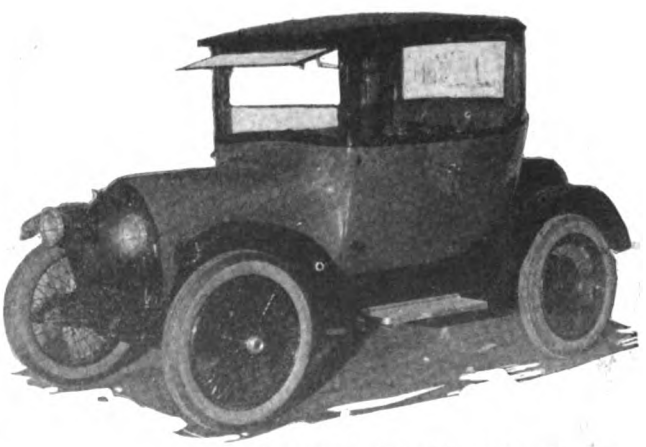
This Moore model introduced some pleasing variety into the midst of cars having a conservative finish



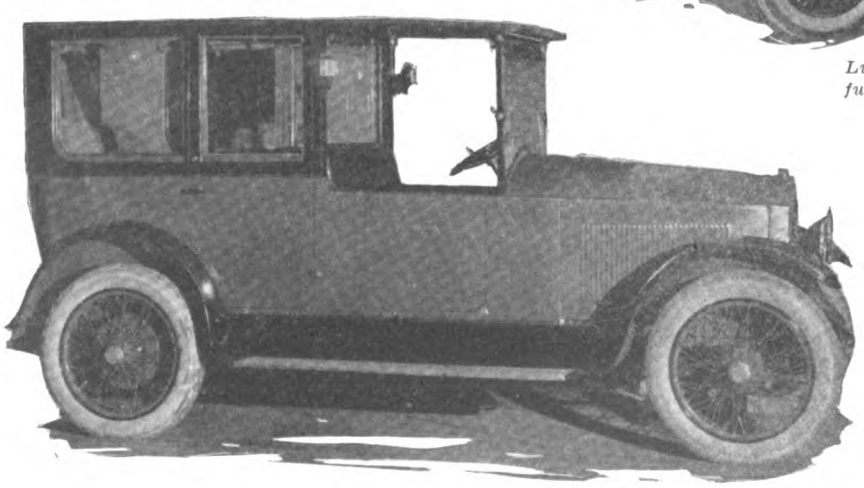
The most fastidious interior decorator would surely be satisfied with this Crow-Elkhart De Luxe model which has ten color and three upholstery options



"Baby Grand" is neither a piano nor a pet name but an old designation of a new Chevrolet chassis on which this convertible sedan is mounted



Luxurious body appointments are furnished with this Detroit electric brougham



Milburn electrics are now being built to develop 30 m.p.h. The model at the left is finished in Hungarian blue and sells for $2,985, f.o.b. factory

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Reilly Says

"The Show Needs Merchandising Atmosphere"

THE Well Known Sennett Dealer in Callawassa Gets to the Show and Says It Is, as Usual, a Good Show but That the Industry Isn't Making as Much Progress in Its Merchandising as It Is in Engineering and Production

REILLY had spent a long time coming to the show from Callawassa and was getting weary of delay. He also had stood in line some time to get a room at the hotel, and when he arrived at the show he found he had to stand in line again to buy a little five-cent war tax ticket to get through the gate.

But after he was through the gate everything was easy sailing. After meandering around and around he finally located the Sennett exhibit with its many starred service flag in the background and discovered Jim, the Sales Manager, waiting in a spirit of lonesomeness for the arrival of the old-timers, most of whom hadn't showed up as yet.

Old-timers are not very thick on Saturday; wherefore it wasn't hard to persuade the Sales Manager to leave his exhibit and wander around the floor. Curiosity as to what was upstairs eventually got the better of them and, like all able-bodied men, they rode to the top floor in the elevator and went down to the press room to smoke. There was no one in the press room but the free lunch man, so they went out and began the process of circulating around the floors and down the stairs to the point whence they started. It is a time-honored show custom.

Contact Work Undeveloped

"Jim," said Reilly, "has it appealed to you that while this is a wonderful show and all that, one of the points that stands out is that there is a whole lot of the same old stuff and same old methods that we have seen from year to year? From an exhibition standpoint the industry doesn't seem to be making a great deal of progress. It has been devoting its time to engineering and designing and production, and all such things as that, but hasn't been developing its method of contact with the public."

"I don't know," replied the Sales Manager. "I hadn't thought much about it. What do you mean?"

What Other Industries Do

"Well," explained Reilly, "it is somewhat noticeable down on the car floors, but it is especially noticeable up here on the accessory floor. If you have ever gone to one of these exhibitions conducted by other industries you perhaps can better appreciate what I mean. When you have a furniture show or a business show or an electrical show, the whole darn thing *looks like a show*, but as you stand here and cast your eye over these accessory exhibits it seems to lack a show atmosphere. There is too much setting stuff down on counters and on the floor and simply letting it go at that. Just about the same way you would put it in a well-ordered stockroom. I was going to compare it with an implement warehouse, but I guess that's going pretty far—and I won't do it.

What a Body Man Did

"It is all right to criticise this way and say that everything is all wrong, but let's just take a look around now and see how many things we can find that have been here year after year and don't seem to have been changed a great deal. Here is a body material exhibit. This man has simply set a couple of rough jobs on the floor and hasn't done another darn thing. He might have put in a corking exhibit on how his materials are manufactured, with classy exhibits showing the progress in the production of the stuff and a number of samples of how the finished product looks and is used.

"I'll bet the thousands of people who come to this show will walk by this exhibit and never give it a second look. I presume the man's argument is that he isn't interested in the public, he wants manufacturers' business; but I don't see how he can very well explain his proposition with what he has in this space. His story, no matter to whom he told it, would be a lot more impressive if he had an exhibit such as I have outlined.

Same Old Spark Plug Display

"And here is a spark plug exhibit with plugs made up to look like cannons. That thing was here last year and I'll bet everyone who saw it last year remembers that it is old stuff. And here are these shock absorber demonstrating devices with these little dolls jumping around in miniature cars and springs that release and are checked by the shock absorber. Why, Jim, these things have been here ever since I have been coming to these shows, and the exhibits have been arranged in just about the same old way.

"I can't attempt offhand to tell you what each one of these people should do to bring their exhibits up to a real exhibition plane, but it seems to me it ought to be possible for about 3000 per cent improvement to be made in almost all of them.

This Must Mean Klaxon

"Now, look at this one here. Here is a horn exhibit and it begins to approach the ideal I have in mind. Instead of the horns being stuck up on a common, ordinary counter, they have been placed on a table with an orange cover against which the black shows off beautifully. The man who designed this job evidently knew something about colors, for it is a fundamental of display that black and orange is one of the best combinations that can be made. And then in the back of his exhibit he has put furniture with cushions and all that sort of stuff. Why, Jim, if every one of the exhibitors went as far as this man has gone this show would be so far ahead of the shows of other years that it would be talked of all over the United States."

"Yes, I think probably you're right," was the Sales Manager's comment.

Money Gone to Waste

"And then here's another one," continued Reilly, "a brake lining exhibit. All this man has done is to take a couple of rolls of brake lining and stretch it up into cone-shaped piles. Perhaps he has nothing to show except his processes of manufacture, but it seems to me he might have shown those and also had exhibits pointing out why his brake lining is better than types that are not so well made. He has paid good money for this space and it seems to me he is letting a lot of it go to waste.

"And look at these die castings! Simply a pile of castings such as you might see on a workman's bench in any factory. And here are storage batteries galore, simply set up in rows on counters. They aren't attractive looking things in the first place and nothing has

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been done to make the exhibits attractive.

"Now here is another one, Jim, that begins to look like something—this exhibit of tire gages and other small products. The man has dressed up his space, has arranged it with an artistic merchandising eye, has put a rug on the floor, has installed some furniture and the men in the exhibit are in evening dress. This man apparently realizes that he is in the show for the purpose of presenting his product to the public in the best light.

Sounds Like Stewart-Warner

"Then here is this exhibit of vacuum tanks and spark plugs and other things. A lot of money has been spent on this exhibit, but I bet the manufacturer makes a bigger net profit every year than a lot of these fellows who simply dump their goods into their exhibits and let it go at that.

"Here is one, Jim, that comes very near taking the leather medal. All this man has is two burlap bags full of hair. It looks to me like Saturday night in the barber shop. The only thing that impresses me is that all of his customers must have been colored gentlemen and about half of them must have been about 70 years old, because one bag is full of snow-white kinky hair, while the other is full of the well-known jet-black kink.

"And here are all these electrical devices and spark plugs in their display boards still spitting away sparks in the same old-fashioned way they have been spitting since the automobile industry was a pup——"

"I know, Reilly," expostulated Jim, "but what else can a lot of people do than show their goods this way? Isn't it——"

There Is a Way

"As I told you before," retorted Reilly, "I can't sit down here and lay out an exhibit to-night for everybody on this floor, but I bet you forty cents I could take any one of them and in fifteen or twenty minutes—with a knowledge of the product—lay out an exhibit of some kind that would be so far ahead of these we are looking at that there would not be any comparison. Even if they are going to show these spitting plugs and electrical devices and all those things, why can't they inject a little atmosphere into their exhibits? Why do we find this atmosphere in other shows and not in the automobile show? Why do we find a couple of these people down here with good color combinations, bits of attractive furniture, and so forth, in their exhibits, and all the rest of the people haven't done a gol darned thing?

"Just take a look around at some of the exhibits that are put on by people who really may be said to come from other trades. Here is a carbon man. He probably has taken part in electrical expositions. His exhibit is a mighty attractive display of a product that is rather difficult to show.

"And here is a company that makes artistic metal devices. It has had experience in business shows and the expositions of other highly developed trades. Just see how attractively its goods are set up.

Another Good Idea

"And here is a manufacturers' representative with a good idea and he very nicely offsets the contention of those who say they are catering to manufacturers and not to the general public. This man sells to jobbers only. The front of his exhibit is fairly attractive, but the inside is much more attractive. Down through the center of one side he has an aisle with display fixtures, making the interior of his exhibit a regular store into which he can take prospective buyers. This same idea could be used with every product whose exhibitor advances the statement that he wants to reach the quantity buyers and not the public. But above all things, an exhibit should be made attractive or else I consider it a reflection upon the buyer of the space.

"Quite a number of these people have nice showcases and fixtures, but many of them haven't done anything except to set these cases down in the middle of a barren space. Supposing it did ruin a rug or break a chair by putting them into the exhibit? No result is ever achieved without some expense, and so long as an exhibitor is willing to spend money for space, why shouldn't he spend a little bit more and get the greatest value out of the space?

"And supposing a prospect comes into the exhibit and you want to know whether he is on your list. How can you get immediate information unless you have moved part of the office into the show space and provided facilities for getting in touch with your office records? Some exhibitors have done this and some haven't."

"Maybe there is a show rule against it," suggested Jim.

A Show Rule

"If there is, it's what I would call a fool rule," snapped Reilly. "It's all right to try to get uniformity in a show and to prevent certain exhibitors from monopolizing attention with bright lights, enormous signs and all that sort of thing, but what earthly sense is there in putting on a national display function and then preventing a man from giving more than a five per cent display?

"We've had this same thing up in our own show in Callawassa, and we finally arrived at the agreement that it was foolish to prevent a man putting palms and ferns and furniture into an exhibit if he wanted to go to that expense, and that's why our show is one of the best looking shows in the United States every year."

"Yes, that's right," said Jim.

"An exhibit of cars," Reilly added, "always looks better than an exhibit of storage batteries because the cars are a more attractive looking product, even if nothing is done to the exhibit, but in my mind there is a whole lot of merchandising that could be put into most of these car exhibits also.

"I think this only bears out what I have said many times before, which is, that the progress of our industry has been along engineering and production lines and merchandising has lagged behind. We have always had a demand bigger than our supply; we haven't had to sell things. People have been glad to get any old kind of car they could get so long as it would run, and we have lightly talked of the time when cars would have to be sold and not bought. Perhaps you don't realize it, but that period has dropped on us overnight, and all of a sudden a lot of us find that we aren't selling as much as we used to.

"A better expression of the situation would be to say that we never have done much of any selling at all and the present condition is due to the fact that people aren't buying as much as they used to. You can look around in the industry and find manufacturers and dealers who are good merchandisers who are to-day doing almost as much business as they ever did, and I still maintain that a dealer and a factory can sell all the cars that they make during this war period if they sell them instead of waiting for people to come in and demand them.

How About This?

"What do you suppose the cash register business would amount to if the cash register companies waited for all of the little delicatessen store people and bootblacks to come in and demand cash registers? The business would go to pieces in twenty-four hours. The truth is that the cash register company goes out and combs the country with a fine-tooth comb—and its production is enormous as a result."

They were just then passing the exhibit of one of the oldest and most aristocratic cars in the industry and a frown crossed the faces of both men as they heard a salesman say "pleasure car."

"Gosh," said Reilly, "I thought we had heard the last of that.

"And to go a bit farther with the comparison," Reilly resumed. "Go into a business show and look at a cash register exhibit and see if it looks any different from the exhibits in our automobile show. How many of us would be using dictaphones if the dictaphone company waited for us to come in and demand its goods? How much life insurance would be sold if life insurance people put their policies on a platter and waited for us to come around and pick them up?"

"I don't think I can disagree with you even for the sake of argument," said Jim. "And I guess I'll go down and see if there isn't something we can do to that exhibit of ours."

And in Conclusion

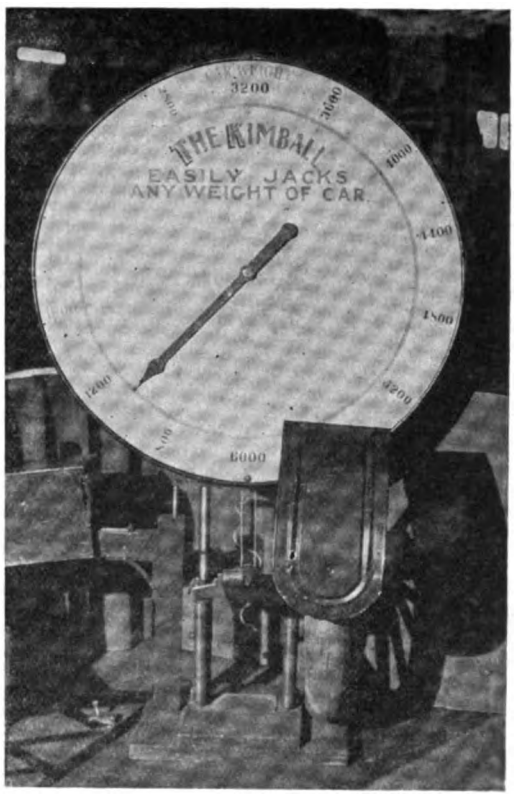
"I suppose a lot of people will say that all this criticism is unjustified; that goods of this kind can't be attractively displayed; that show rules prevent this and prevent that, and that the expense wouldn't justify the results. To all of which I reply that a one hundred per cent merchandising exhibit is nothing except the outward evidence of inherent one hundred per cent merchandising principles—and if we have the principles the evidence can't help but show itself."

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Good Display Ideas *at the* New York Show

IN the great array of exhibits at the New York show are many points of merchandising merit. There are many exhibits in which there is little of value from a display standpoint, but on this and the two following pages are some of the points that appeal to the show visitor.

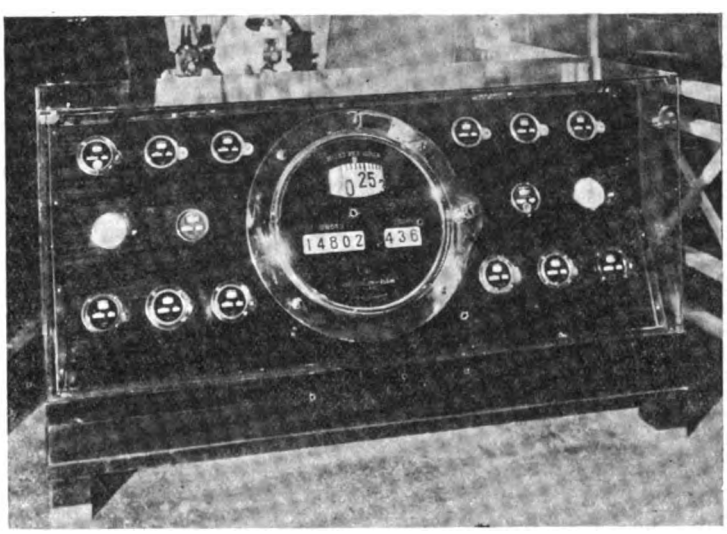
The point made on these pages—and in the Reilly story on the preceding pages—is that the man who has paid good money for show space should spend a little more money—and effort—and show his goods to the best possible advantage. He should get good fixtures, use furniture where necessary, and make his merchandise attractive and instructive to show visitors.



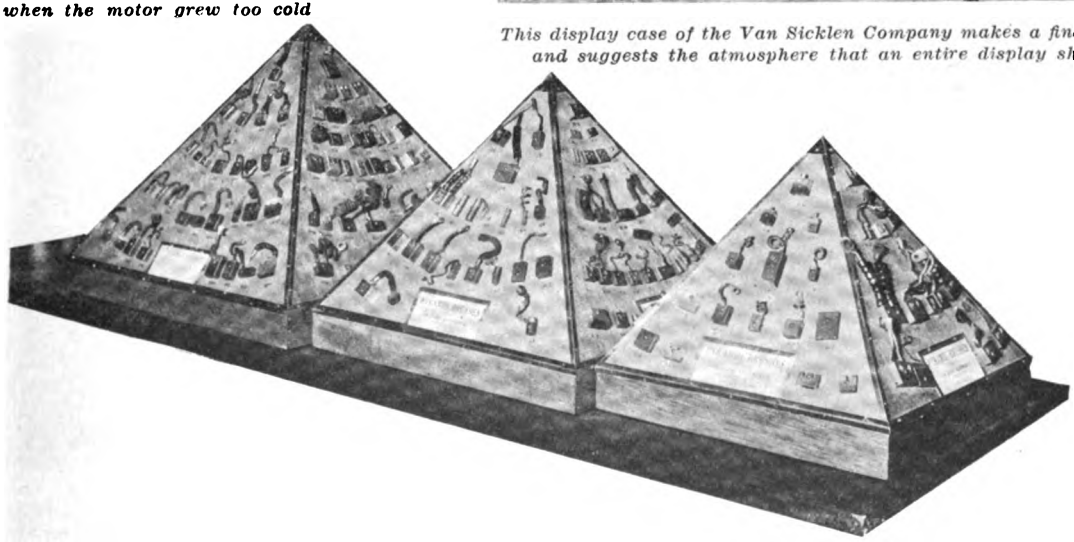
The Kimball Jack provided a device whereby visitors could turn the handle of the jack and see how easily a big weight could be lifted



The Harrison Thermostatic Control had a display device that brought crowds to see how the shutters shut when the motor grew too cold



This display case of the Van Sicklen Company makes a fine center piece and suggests the atmosphere that an entire display should have

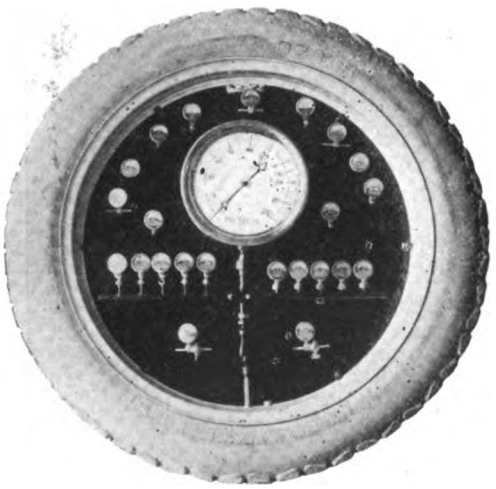


These Pyramid Brushes are not easy to make into an attractive display, but see how well the job was done

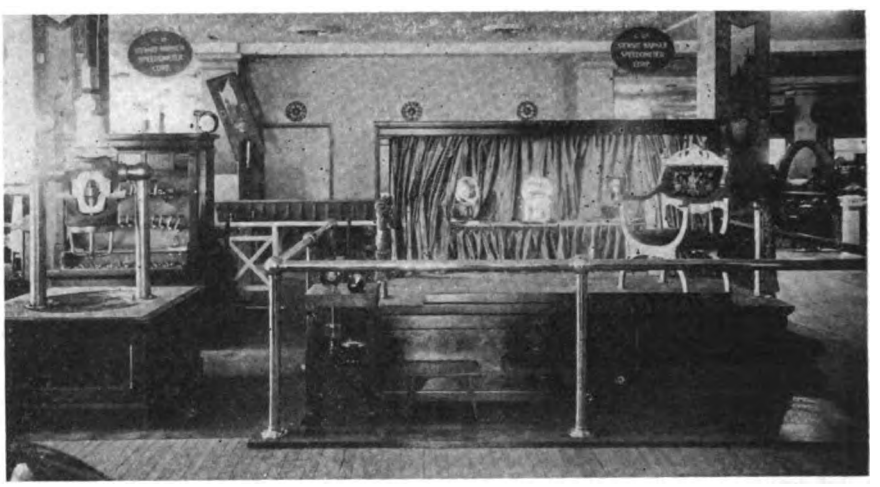
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The World May Beat a Path to You

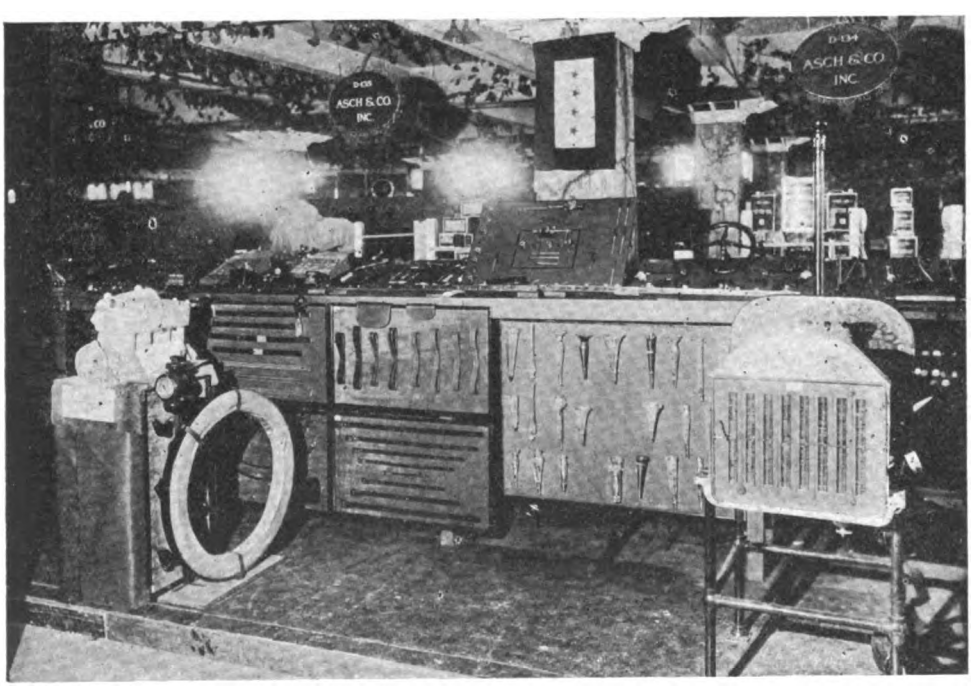
These are some of the good display ideas at the New York Show



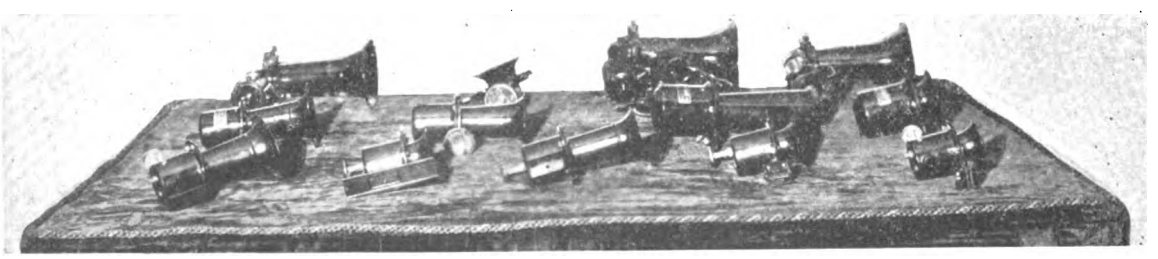
These Pressurite gages are for tires—so the exhibitor displayed them inside a tire. Quite clever, wasn't it? It attracted attention



Stewart - Warner demonstrated its wares in a scarlet velvet setting with a throne whereon sat a beautiful young woman. This exhibit is the most elaborate display and the greatest winner of attention at the show



Asch & Co. did a rather diplomatic thing. It arranged its exhibit so it looks well from the front and would attract the attention of the passerby; but inasmuch as its business is with jobbers it has a regular little store in back of the counter in the foreground. Casual show-goers can walk by and see all they care to see, but the jobber can go into the store and transact business just as well as though he were in Asch's place of business. It is an excellent combination of a display for the interested and the uninterested show visitor

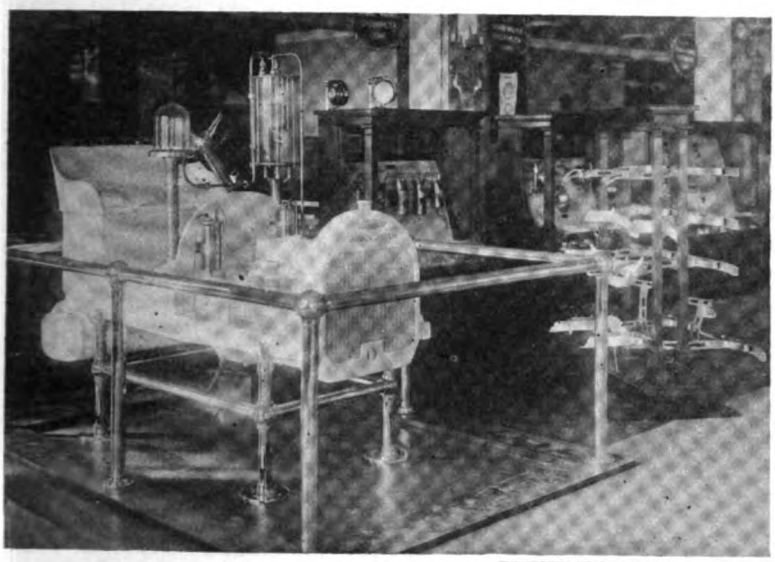


Klaxon set its jet black horns on a draped table with an orange cover where they stood out in fine style. Back of the table was wicker furniture with cushions and cosy corners. It is one of the best exhibits in the show

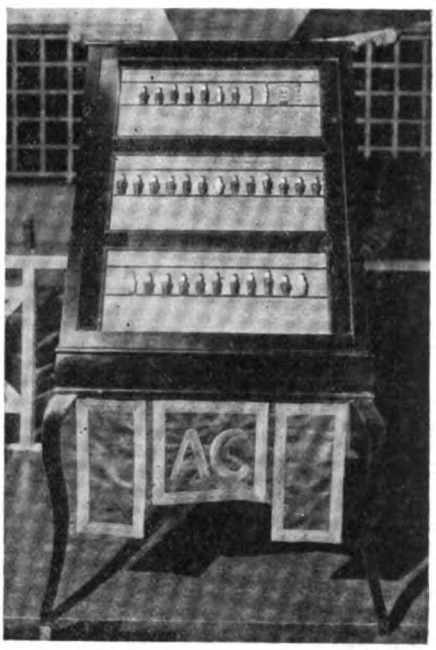
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But Good Displays Are Surest

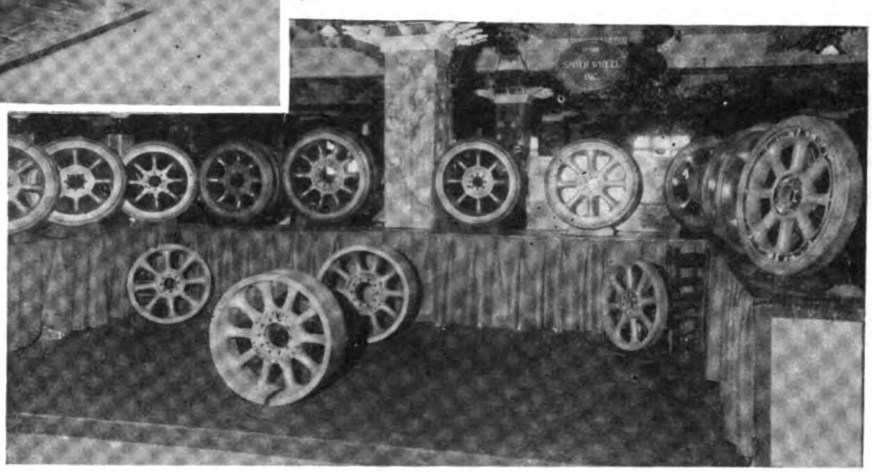
And here are some displays that make folks stop and look



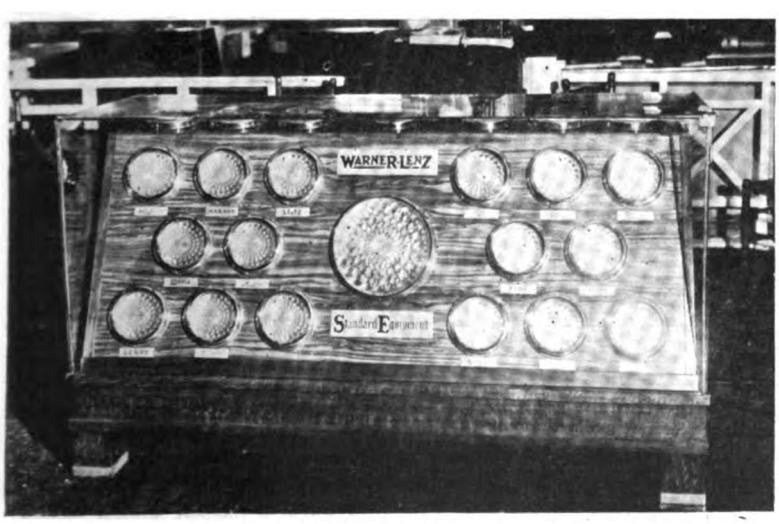
Stewart-Warner demonstrated the working of its vacuum tank with this display. The red liquid in the glass tank bubbled and boiled and there was always a crowd watching the "insides" of something that is a mystery to many car drivers



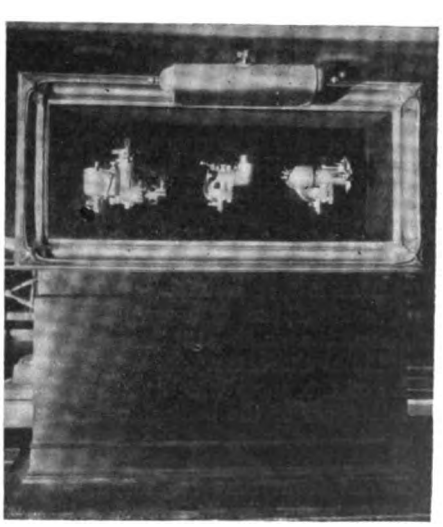
For displaying spark plugs this fixture for the A-C line is excellent. It shows the variety of the line and the fixture is most attractive



Wheels are not highly ornamental, but the Smith people did well with their wares. The display is neat, not crowded, and one gets from it the idea of strength and solidity. This display is among the good ones every year

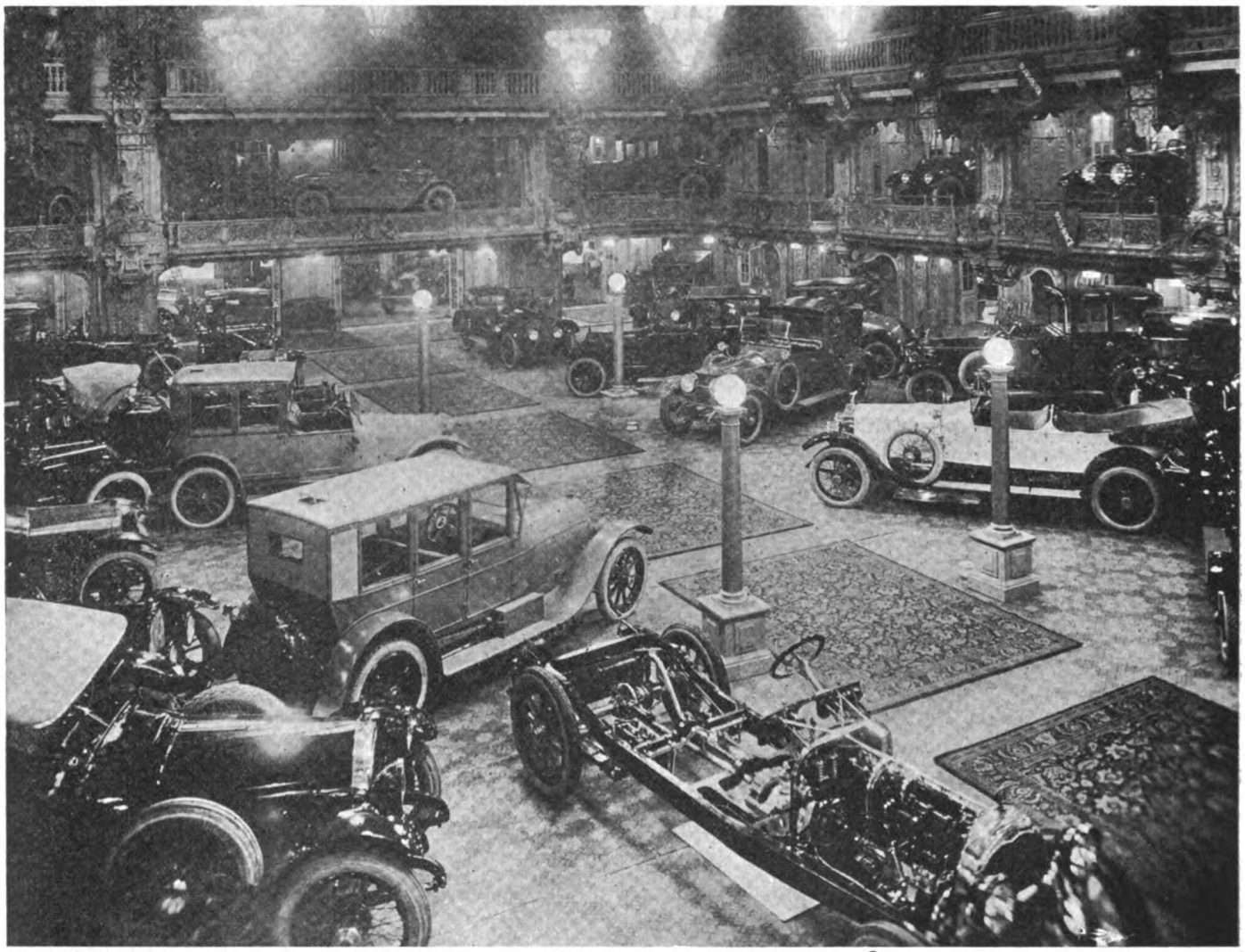


The Warner Lenz display case serves an ornamental and useful purpose. It is a better looking display case than the picture indicates. The space in the exhibit, however, could have carried more of the same atmosphere



These carbureters were given an atmospheric setting in a shadow box with strong light from the reflector

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Here is a typical view of the sumptuous setting in which the luxury cars were exhibited at the Astor Salon

Setting Styles in Body Design

Annual Salon at the Astor Reveals a Wealth of Luxurious Newness

NEW YORK, Jan. 2—Striking the keynote in body design from a fashionable angle, the fourteenth annual automobile salon, which is now running at the Hotel Astor, bears out its traditions of former years. The salon is always a body show, and although war is interfering with the presence of some of the customary European exhibitors, the salon still maintains its international character.

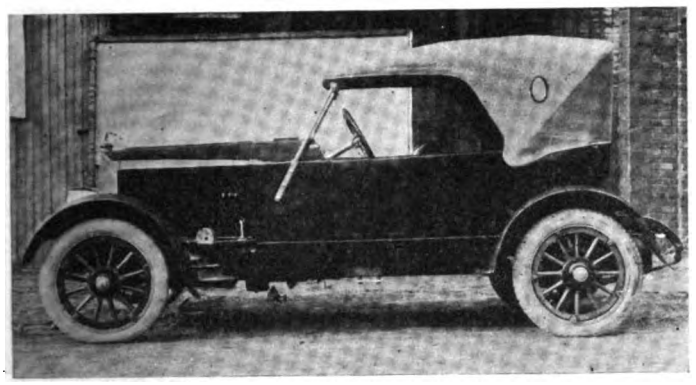
Some of the notes which will be made by an observer of the bodies at the salon are the improvement of the convertible and collapsible types, the dropping off of the divided front seat for touring cars, the better arrangement of control features, and the strong tendency towards the straight line body with the beveled edge. These lines are noticeable not only on the open but also on the closed cars, and on both these types the tendency toward building the body to suit the physical requirements of the user is quite noticeable.

There is a four-passenger Murray car all in aluminum with a decidedly angular side and fender line built to suit the purchaser, who happens to be the son-in-law of Andrew Carnegie. Another tailor-made body is shown at the Brewster booth, where there is a sedan for the personal use of the president of the company. This is a square type with a flat roof relieved by a sloping front line. It is trimmed with cane and spruce, the body weighing only 785 lb., or 400 lb. less than the average Brewster-Knight sedan body.

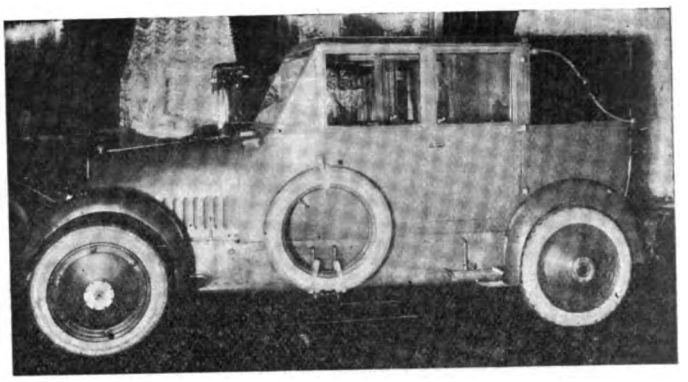
The Biddle company has its new Duesenberg engine-equipped car on the floor. With the exception of some strengthened parts to take care of the new engine, the 122-in. wheelbase chassis is the same.

The Mercury car, made by Mercury Cars, Inc., Hollis, L. I., is shown, and is a new product selling from $2,750 to $2,950 in open models and $3,600 to $3,900 in closed models. White, Locomobile and Simplex show complete lines, as usual, and the Fageol also has one of the Hall-Scott aviation engine equipped cars on the floor selling for $13,000. Cunningham, Lancia, Murray and Rolls-Royce all show town and convertible town bodies which are typical of the high narrow design which seems to be nearly universal for the formal type of city vehicle.

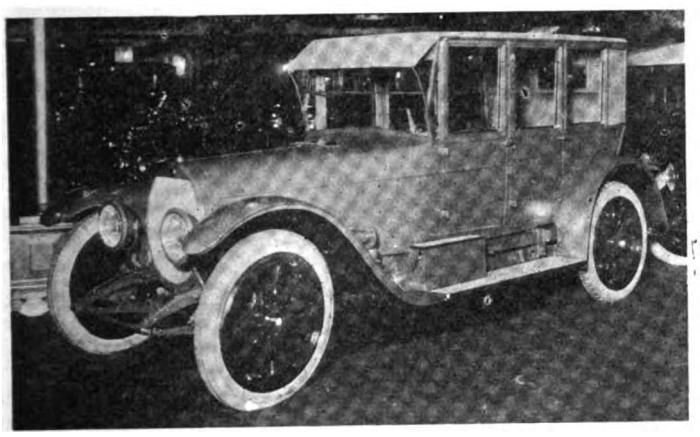
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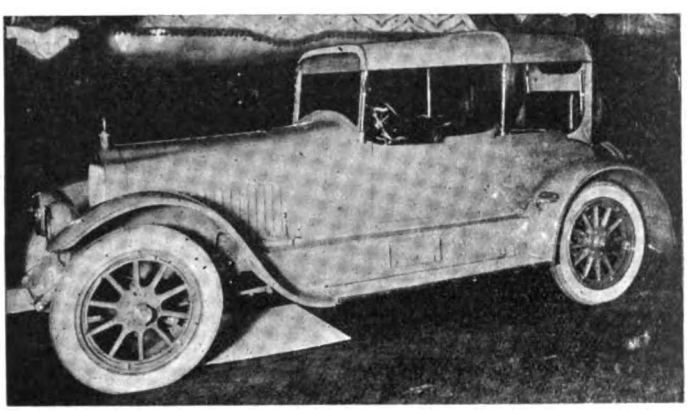
A four-passenger 50-hp. Mercury car, exhibited by the Mercury Cars, Inc., is finished in Walton body gray. Note the concealed tire holder at the rear. Sells for $2.950.



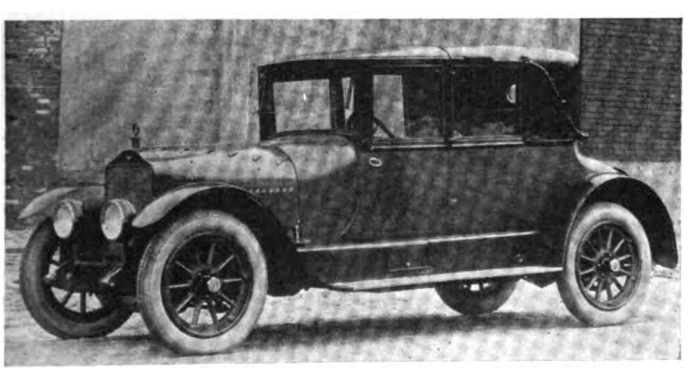
This Daniels eight shown by the A. Elliott Ranney Co. is a military model landaulet-sedan designed especially for war service and is finished in U. S. olive drab. Small steps take the place of runningboards. The price is $5,200.



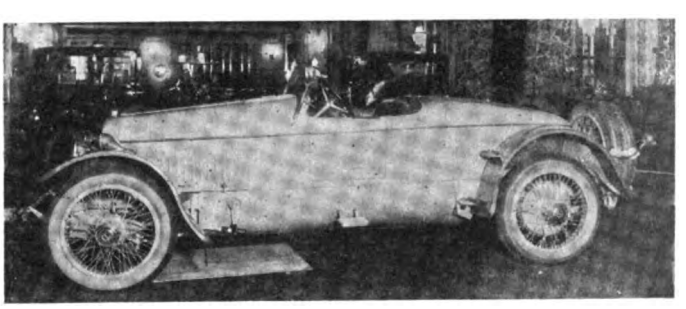
Another military car exhibited by Brewster & Co. is finished in khaki color. The interior is wholly of natural ash with khaki upholstery and rattan door panels. Priced at $8,400.



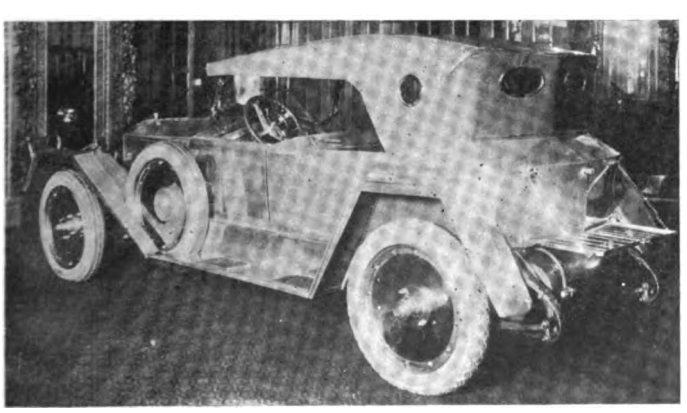
A White special roadster for three passengers exhibited by the Rubay Body Co. is finished in pigskin color and has a new disappearing top, the frame of which telescopes into the body. There is a folding flush rear seat. Sells for $6,300.



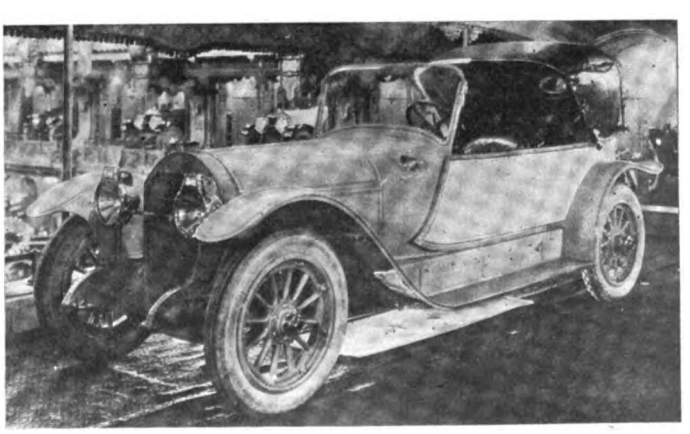
Here is a White with Rubay cabriolet—Biarritz body finished in White special gray and exhibited by the Rubay Body Co. It sells for $6,900.



A Cunningham eight with runabout body is shown by John G. Dale. It is finished in French brown and sells for $4,800



The Murray Neator Car Co. has this special four-passenger car. The body is polished aluminum with a leather top. The steel disc wheels are made by the Detroit Steel Products Co. The price is $6,000.



A four-passenger Locomobile shown by the Rubay Body Co. is finished in French gray with cane panels. Sells at $6,750

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A Department of

BETTER MECHANICS

No. 51

Installation of
Atwater Kent Ignition System
Type K-2 on Ford Cars

BEFORE starting the installation of this system on the Ford, the following bill of material should be checked through to see that everything required is at hand:

Outfit Includes

1—Four cylinder "K-2" Unisparker mounted on special gear-cover to fit in place of standard Ford gear-cover. A
2—One spiral drive gear. B
3—One Atwater Kent coil with switch complete. C
4—Flexible double conductor cable between Unisparker and coil. This is attached to Unisparker when shipped. D
5—Two cotter pins for pulley. E
6—Four screws for attaching coil to dash. F
7—One special socket wrench. G
8—Complete direction sheet.

Material Required

High grade secondary wire having an outside diameter not exceeding 5/16 in. —11 ft.

Flexible stranded primary wire—if car is roadster, 15 ft.; if touring car, 25 ft.

Six cells, dry battery (a six-volt storage battery may be used if desired).

Tools Required

Screw-driver, pliers, monkey-wrench, hack-saw.

The Installation

1—Completely remove the Ford coil box and all ignition wiring.

2—Remove the radiator as follows:

(a) Drain off circulating water.

(b) Remove the right headlamp when facing the radiator.

(c) Unbolt upper water connection and loosen hose connection on the side of the motor, so as to leave both sections of hose connected to the radiator. It is easier to unbolt the water connection flange than to remove and replace the upper hose connection.

(d) Loosen brace-rod check-nut at dash and unscrew rod from the radiator.

(e) Remove nuts from the feet of the radiator and the radiator may be lifted off.

3—Remove the fan and fan bracket and cut off lug as shown in Fig. 3.

4—Remove the adjusting screw and lock-nut from present gear-cover and place the same in the gear-cover furnished with outfit. See 4, Fig. 5.

5—Remove the commutator by taking off the nut, washer and pin, sliding off the contact arm and commutator.

6—Remove cotter pins from pin in fan pulley on the crankshaft (see Fig. 2) and drive out the pin which runs clear through the shaft. This pulley must be moved forward on the crankshaft about ½ in. in order to set the new gear-cover in place, after which it is moved back to its original position, new cotter pins being provided in case the original ones are damaged in removing.

7—Remove the gear-cover, using the special socket-wrench provided with the outfit, for taking out the bolts which are next to the crankshaft.

8—Remove the semicircular piece of felt from the groove in the Ford gear-cover where it fits over the crankshaft and replace in a new gear-cover furnished with outfit.

9—Place the spiral gear of the Atwater Kent system on the camshaft in place formerly occupied by the commutator and set up tight, applying plenty of grease to the teeth of the spiral gear.

10—Be sure that the paper gasket used between the old gear-cover and the crankcase is in good condition and is carefully transferred to the new installation.

11—Place the new gear-cover complete with the Unisparker in position on the motor, sliding it into space, as shown in Fig. 4.

After it is placed in position insert the two end bolts, marked No. 5 (Fig. 5), also screw in the fan bracket bolt No. 3 (Fig. 5), thus obtaining the proper alignment of the gear-cover, after which the other bolts may be set up.

12—The fan pulley on the crankshaft should next be set back into position, inserting the pin and fastening this in turn with the two cotter pins included with the outfit.

13—Remove the spark plug in cylinder No. 1 next to the radiator.

14—Bring piston in No. 1 cylinder up exactly to high dead center at top of compression stroke.



Fig. 1—Type K-2 Ford Outfit as Unpacked

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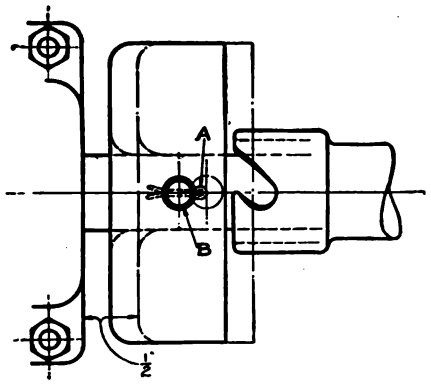


Fig. 2—Pulley moved forward temporarily to facilitate installation

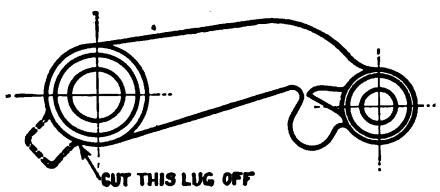


Fig. 3—Fan bracket, showing lug to be cut off

Timing the Engine

1—Set the clamp under the Unisparker so that the Unisparker may be turned in its bearing. For accurate setting it should be clamped just tight enough to turn fairly hard, then grasping the Unisparker firmly turn it slowly and steadily in the opposite direction to the hands of a clock until a click is heard. Stop exactly at the point where the click was heard and lock the Unisparker fast by tightening up the clamp bolt.

2—Take off the distributer cap.

3—Note the direction in which the distributer block on the upper part of the distributer points and replace the cover. The terminal to which it points will connect to the spark plug in cylinder No. 1 and the spark will be timed to occur exactly on "center." The diagram (Fig. 6) shows the relation of the distributer terminals to the spark plugs, and in applying this to your installation, the distributer terminal to which the distributer block points will always be No. 1 and will connect to cylinder No. 1. The other terminals will connect to the remainder of the spark plugs in accordance with the order of firing of the Ford motor (which is 1, 2, 4, 3), the other distributer terminals connecting to these plugs in rotation.

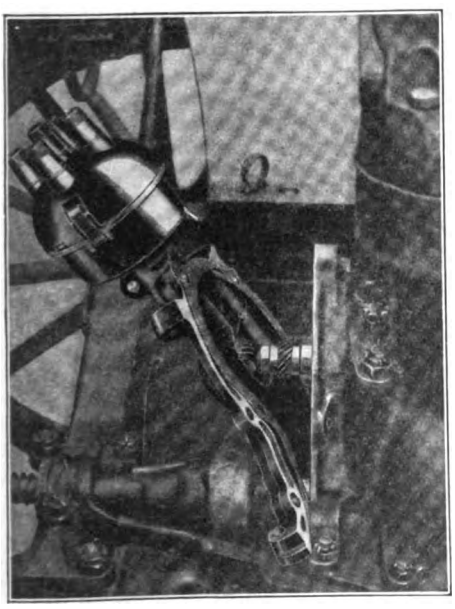


Fig. 4—New gear cover being placed in position. Note that the fan pulley is moved forward about one-half inch

If spark timing is accurately done according to the above instructions, the timing will be correct for the maximum power, speed and flexibility of the engine.

Once set, the spark is automatically controlled by the governing device in the base of the Unisparker, and the spark is timed with automatic precision for any motor speed. It is always retarded automatically for slow starting and for hill climbing, and automatically advanced for any speed of which the engine is capable. Once properly timed, it should require no further attention.

Before proceeding with the wiring, complete the mechanical installation as follows:

1—Replace the greater cap taken from the old gear-cover.

2—Replace the fan and bracket on the new gear-cover, making sure that the grease cup on the fan is full of grease.

3—Replace the radiator as follows:

(a) Set the radiator in position.

(b) Connect the upper and lower water coupling. (Note that the gasket is in good condition.)

(c) Bolt the radiator in place, taking care not to set up springs under the bolts too tightly.

(d) Replace the cotter pins in the lock-nuts.

(e) Connect the brace-rod from the dash to the radiator, screwing it first into the radiator and then tightening up the lock-nut at the dash.

4—Replace the lamp.

5—Replace the spark plug in No. 1 cylinder.

6—Mount the Atwater Kent coil on the center of the dash so that the round head of the brace-rod fits in space counterbored for it on the back of the coil. The necessary screws for mounting the coil on the dash are provided with the outfit. The position of the coil is shown in Fig. 10. Mount the coil.

Wiring Primary Cable from Interrupter to Coil

Run the black primary cable which is connected to the interrupter up along the brace-rod, fastening it thereto with a few turns of adhesive tape, and thence, through one of the holes left by the original coil wires to the coil, where the two wires are connected to the two binding posts at one end of the coil marked "Int." See Fig. 6.

Secondary Ground

From the bottom of the coil a wire should be run from the post marked "GRD" through a hole in the dash to one of the bolts fastening the steering column to the dash. In making this connection to this bolt, the wire should be bared for about ½ in., bent into a U shape and inserted between dash and washer. Do not wrap the wire around the bolt several times.

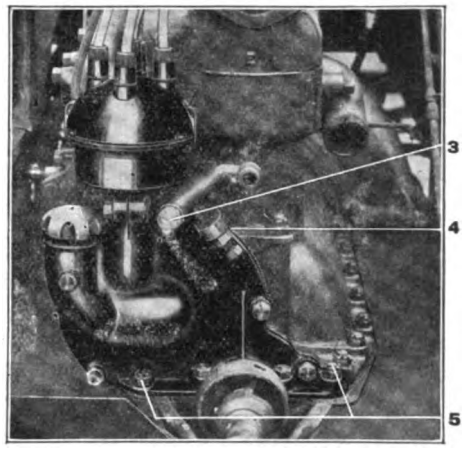


Fig. 5—Type K-2 Unisparker in position on Ford motor

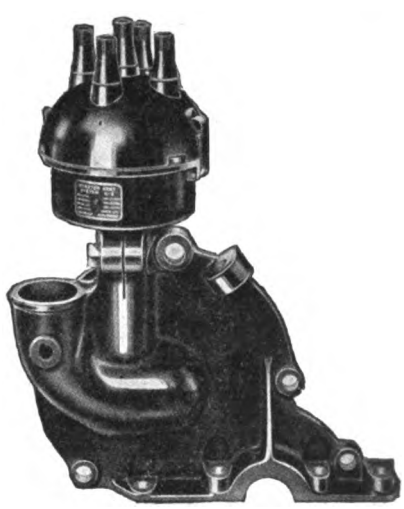
Secondary Wire from Coil to Center of Distributer

The main high-tension or secondary terminal of the coil is protected with an insulating cover which unscrews to enable connection to be made at the binding post.

Unscrew this cover and slip it down over the secondary wire. Make the connection to the secondary binding-post and then run the high-tension wire through one of the holes left by the original coil wires to the center of the distributer. Keep this clear of the engine by fastening it at one point to the brace-rod with adhesive tape.

Distributer Connections

Cut away the insulation from the secondary wire for a distance of about ⅛ in., cutting the insulation back neatly and leaving no stray wires, also being careful not to cut the wire when re-



Complete assembly of Atwater Kent system for Fords

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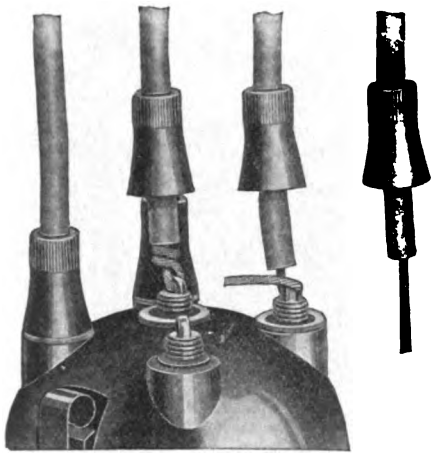


Fig. 7—Method of making connections to distributer

moving the rubber covering. This is shown in Fig. 7.

Unscrew the secondary terminal cover and push this up on the wire in such a way that after the connection is made it can be brought down over the connection and screwed tight.

Pass the wire about three-quarters of the way through the hole in the brass terminal.

Bend the end of the wire back on itself to make one complete turn, as shown in Fig. 7. These wires should not be soldered.

Bring down the insulating terminal cover and screw it down on the terminal so as to seat against the rubber gasket at the bottom of the terminal. It is not necessary to have this any tighter than can be set with the fingers. Do not under any circumstances use pliers for this purpose.

Order of Firing

The order of firing on the Ford car is 1, 2, 4, 3, in other words, the spark occurs first in the cylinder No. 1, No. 2, No. 4 and No. 3 cylinders respectively.

To find the proper connections to the distributer note: When the distributer cap is replaced on the Unisparker, it will fit only in one position. The terminal to which the distributer block points after the motor is properly timed is always No. 1, and should be connected to spark plug in cylinder No. 1. The next terminal in rotation is No. 2, and should connect to the spark plug in No. 2. The third one connects to cylinder No. 4, and the last one to cylinder No. 3, keeping in mind that the direction of rotation of the distributer is the same as the hands of a clock.

The wires leading to the cylinders No. 3 and No. 4 should be of sufficient length to run up to the radiator brace-rod, to which they should be taped, and then down to their respective cylinders, thus keeping them free from contact with any heated parts of the motor.

Battery Wiring and Installation

Use six dry cells connected in series (a six-volt storage battery may be used if desired), the carbon of one cell connecting to the zinc of the next, and so on, leaving at one end of the battery a free carbon terminal and at the other a zinc terminal.

On the Ford touring car the battery can best be located under the rear seat, the cells being installed in a standing position.

On the roadster the cells are placed in the receptacle back of the gasoline tank, and should lie on their sides.

Batteries should be installed so that they are fastened firmly in place, and are insulated from each other and from any metal parts on which they might ground.

The pasteboard covering on the dry cells is utterly useless as permanent insulation; therefore, the cells should be separated from each other by wooden or paper wedges, and care should be taken to see that they are not likely to vibrate loose or in any way come in contact with any metal parts of the car. See that they are packed in tight.

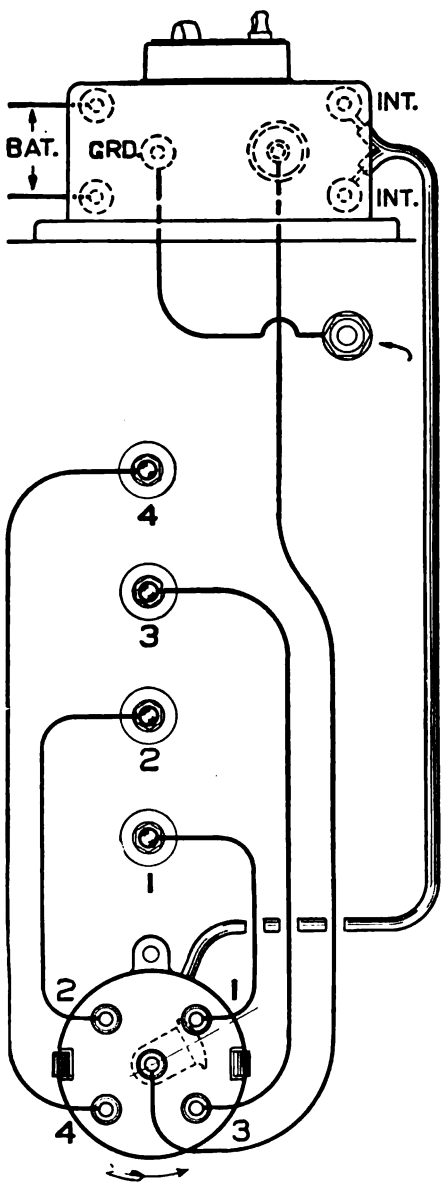


Fig. 6—Diagram of wiring Type K-2 Ford system

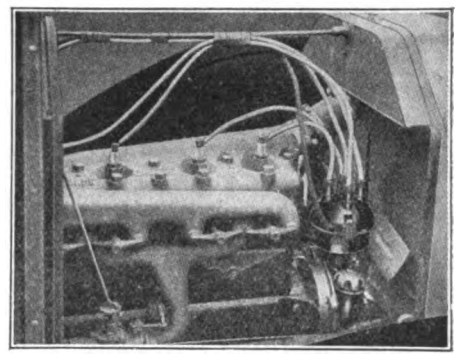


Fig. 9—K-2 Ford system installed complete (side view)

Make Battery Connections as Follows

From the post marked "Pos." on the coil run a wire down from the engine side of the dash and along the frame, up under the seat to the point where the battery is installed. This wire connects to the carbon post of the battery.

Another wire should run from the post marked "Neg." on the coil in the same manner, which connects to the zinc post on the battery.

These wires may be fastened with insulated staples to the wooden strips or other wooden parts over which they run. Care should be taken, however, not to drive two staples close together, neglect of this detail being a frequent cause of grounds and short-circuits.

Contact Points

The only adjustable feature of the Atwater Kent system aside from the initial timing is in the contact points. These are adjustable only for natural wear. The initial adjustment made at the factory should be good for several thousand miles of service.

The contact screw is provided with a number of shim washers against which it is set up tight. When the points eventually become worn they should be dressed flat and smooth, after which a sufficient number of washers should be removed so that when the contact screw is set up tightly it will maintain the proper gap between the points.

This distance between the contact points should be the thickness of a thin visiting card, say 10/1000 in. to 12/1000 in. They should never touch when at rest.

Maintenance

Do not attempt under any condition to alter or change the adjustment of any of the parts of this system. Each part is exactly right in shape, each spring has the proper tension.

The operation of the contact-maker is so rapid that it cannot be followed with the eye, and because you cannot actually see the contact made and broken do not be deceived into thinking that it is inoperative, or that it is defective or worn.

The notched shaft and lifter, also latch which operates the contact spring,

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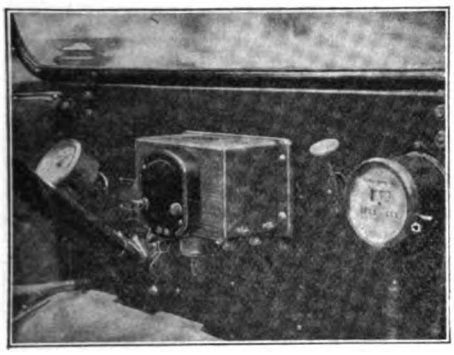


Fig. 10—Kick switch coil installed on Ford dash

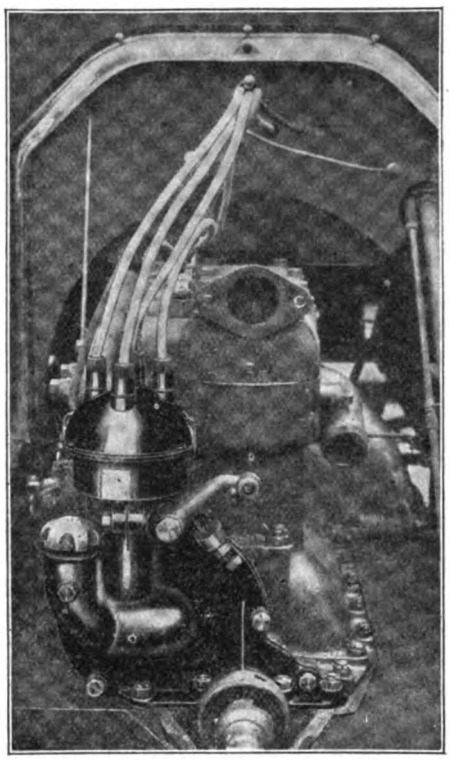


Fig. 8—K-2 Ford system on motor (front view)

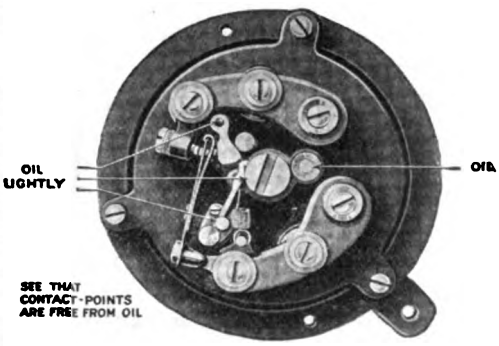


Fig. 11—Oiling diagram

are all of glass-hard steel, and their movement is so slight that they are subject to practically no wear whatever.

Oiling

Use a small amount of light lubricating oil at intervals of 500 miles. Avoid getting oil on the contact points. See Fig. 11.

Locating Trouble

If at any time the engine misses do not immediately jump to the conclusion that it is due to the spark of the ignition system. There is far greater likelihood that it may be elsewhere. If missing or falling off in speed is encountered, look first to the valves, note that they are free and seat properly.

1—Note that there is good compression in each cylinder.

2—Look to the carbureter. Make sure it is correctly adjusted and in good order—note carbureter instructions in Ford manual.

If after looking over the valves and carbureter you are convinced that the trouble is with the spark proceed as follows:

1—Look over the wiring, making sure that all battery and other connections are tight. A loose wire will cause jerking of the car and irregular missing—dropping two or three or more explosions at a time.

2—Take off one spark plug wire and note that the spark is at least ¼ in. long. If so it should be sufficient.

3—Then test the batteries, which should show at least 3 to 5 amperes.

4—If the batteries are good, examine the primary wiring and contact points. If the points are too far apart, adjust these, leaving the gap about the thickness of a thin visiting card. Note that the points should never touch when at rest.

5—If spark at the plug wire is ¼ in. or longer try a new plug first in one cylinder, then in the next and so on until all cylinders have been tested. If this fails to locate the difficulty, examine the secondary wiring between the distributer and plugs. Any plug under suspicion should be replaced with a new one. Simply cleaning will not necessarily restore it.

Getting a Definite Service Understanding with Owner

One Detroit Garage Gets Things Down in Contract Form, Which Assures Protection and Satisfaction

GARAGE owners are constantly facing the problem of getting definite authorization for the type of service they shall render their patrons, or of obtaining anything in the nature of a contract between the car owner and the garageman. Many Detroit garages are solving this problem by requiring each patron to fill out a card index form, stating exactly what the owner desires, and if desired, authorizing some other party to use the car.

These cards are sent to each owner, together with a circular letter explaining how its use will protect the owner, as well as the garageman. In case of default, the garageman can sue the owner and have a definite ground for suit, and he is at all times provided with a reference showing where the owner may be reached, his credit standing, and all data regarding his car. The letter that goes with the card follows:

Dear Sir: We are inclosing herewith a card, which in the past month has been adopted by nearly every garage in this city. Will you kindly fill in this card and return it to us for our files, crossing off the unnecessary articles you do not wish us to supply you with. This card is merely a written authorization from you to supply you with storage, etc., and is in no way a reflection on your credit. Any mistakes should be promptly reported to the office.

Thanking you for your valued patronage and trusting we may be able to serve you in the future, we are, very truly yours, Fashion Garage, Inc., Detroit.

FASHION GARAGE, Inc.
22-32 Brady Street
DETROIT, MICH.

Customer's Name Warren B. Rood
Address 24 Garfield Ave.

You are hereby authorized to provide storage, furnish necessary supplies, labor and material for my car as stated on reverse side of this order. I declare that I am the owner of said car and that the license plates are registered in my name and I consent that you may have the right of lien and sale in the manner provided for by Act No. 312 of the Public Acts of Michigan of 1915, including the right to retain or retake possession of said car in case of default in payment of bills.

Owner's Signature Warren B Rood

OVER

FASHION GARAGE, Inc.
22-32 Brady Street
DETROIT, MICH.

Owner of Car Rood, Warren B.
Residence address 24 Garfield
Residence telephone Garfield 4955
Business address Forrest + Orleans
Business telephone Ridge 22
Make of car Reo License No M-15507
Class of service desired - Storage - Weekly Wash
Rate per month $ 15.00
Where do you wish bills sent? 24 Garfield
Shall any other than the owner of the car be allowed the use of same? No
Credit approved: J. M. C.
Storage commenced May 15, 1917
Storage discontinued
Account opened May 15, 1917
Account closed
Rating Good

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Repairshop Shortcuts

From The Motor World Roadman

No. 1511—RADIATOR REPAIR STAND

A radiator stand permitting the radiator to be turned in any position is illustrated. By it the radiator is clamped in any position on a swinging arm. The arm is forged steel and is carried on a pipe standard that is bolted to the floor. Thumbscrews permit it to be locked in any position. An up-and-down adjustment is also provided, so that the radiator may be raised or lowered to a height most convenient to the workman. Incorporated in the stand is a revolving table for tools.—C. V. Mackey, Benson's Garage, Loveland, Col.

No. 1512—BATTERY SHOP STAND

It is the usual practice to construct the battery stand of wood and cover it with sawdust to absorb any acid that may be spilled. By making it in the form of a shallow trough covered with lead, sawdust may be dispensed with and the acid drained into a jar placed at one end of the stand. This permits the workman to work faster and is cleaner than the sawdust method.—I. Rae Cowdin, Willard Service Station, Fort Collins, Col.

No. 1513—LEAD TAG HOLDER

Individual storage batteries are designated in the repairshop by means of a lead tag bearing the serial order number of the job. A wall holder for these tags permits a supply to be made up in advance and holds them in numerical order so that they may be removed and applied as the jobs come in. It is mounted at the rear of the receiving bench, and as the work tickets are also serially numbered they are made out at the same time and opportunity for mistake is decreased.—I. Rae Cowdin, Willard Service Station, Ft. Collins, Col.

No. 1514—BATTERY REPAIR BENCH

When tearing down or rebuilding a storage battery, lifting or dragging the battery around to make the various parts accessible is obviated by the use of a turntable placed in the center of the bench. This table is mounted on ball bearings and permits the battery to be turned so that the desired part is instantly accessible.—I. Rae Cowdin, Willard Service Station, Ft. Collins, Col.

No. 1515—JOB TIMING WATCH

When obtaining the total working time on any job a stopwatch is necessary. An ordinary dollar watch may be readily adapted to this work by placing an automatic stop in the back cover of the watch. When placed face upward, the stop is inoperative, but when turned over drops down automatically onto the balance wheel and stops the watch. By setting the watch at 12 o'clock at the start of the work and turning it over whenever the work is left for any reason, at the finish the watch reading shows the elapsed time.—I. Rae Cowdin, Willard Service Station, Ft. Collins, Col.

No. 1516—RADIATOR TESTING

Radiators are usually tested by immersion in water and by application of air pressure to the overflow pipe after stopping the other openings. It is not, however, healthful work on an all-day basis, particularly in wintertime. Then it is advisable to use steam. By the steam method a small amount of water is left in the radiator, and the steam under a pressure of 5 lb. is applied to the overflow pipe. The leak is determined by the issuing steam and the repair effected. A special combination nozzle is used introducing the steam into the radiator. This combines a gage, the steam and the airline. The gage shows the applied pressure. After the repair is made, air pressure to about 15 lb. is applied to determine whether any weakness is still present. As no time is wasted in placing the radiator in the tank, and then draining it, much time has been saved by this method.—C. V. Mackey, Benson's Garage, Loveland, Col.

No. 1517—ELECTRICAL TESTING

Special equipment is not absolutely necessary in testing a starting motor provided an engine lathe is at hand. The motor may be clamped to the lathe bed and driven from the spindle through a flexible shaft. Such a shaft may be a piece of hose containing a continuous coiled steel spring. One end of this is clamped in the lathe chuck and the other fitted with a coupling for attachment to the armature gear or shaft, and as many of these are provided to fit the different makes of equipment as are necessary.—I. Rae Cowdin, Willard Service Station, Ft. Collins, Col.

No. 1518—PISTON INSERTING CLAMP

When installing piston rings in Cadillac cars a special clamp of steel tubing facilitates the work. A piece of seamless tubing is beveled at one end to fit the chamfered end of the cylinder and then split in two parts. At one side a hinge is riveted in place, and on the other a latch. To use, the rings are fitted on the piston, the sleeve locked in place and the piston, together with the rings, pushed into the cylinder without danger of breaking.—C. Harris, Sinnard's Garage, Ft. Collins, Col.

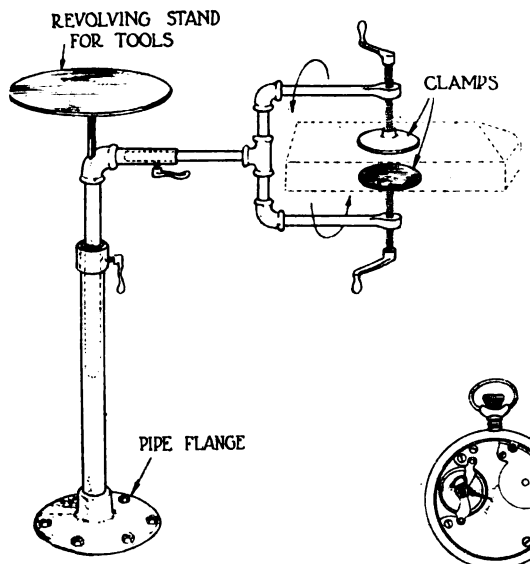
No. 1519—TORCH REST

The lead-burning or welding torch, being attached to a length of rubber tubing, is readily drawn from the bench, and is not at hand when wanted. In addition, a lighted torch cannot be laid down without danger. For this reason a special notched rest for the torch is advisable. This comprises a steel upright fastened in a solid lead base in the manner illustrated.—E. Moore, Auto Electric Service Station, Detroit, Mich.

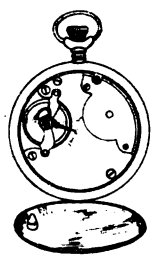
$1 a Shortcut

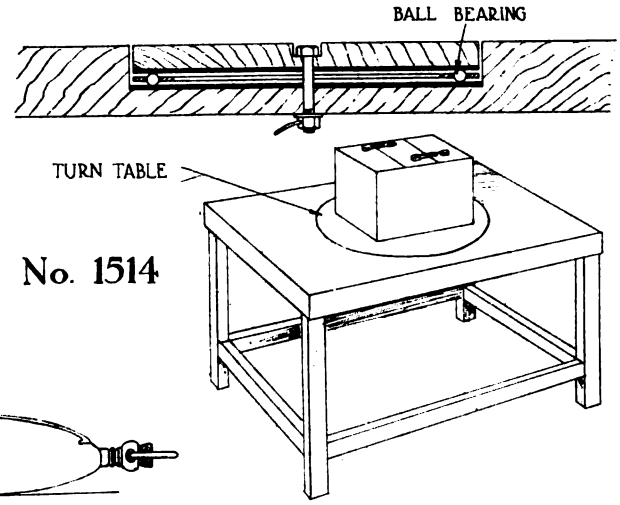
SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay $1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.

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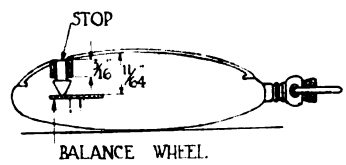


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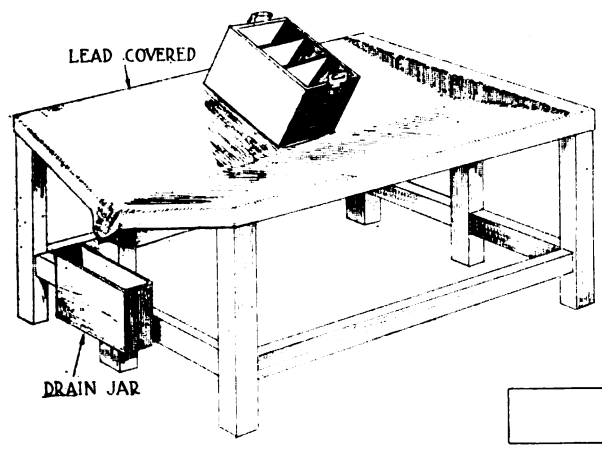




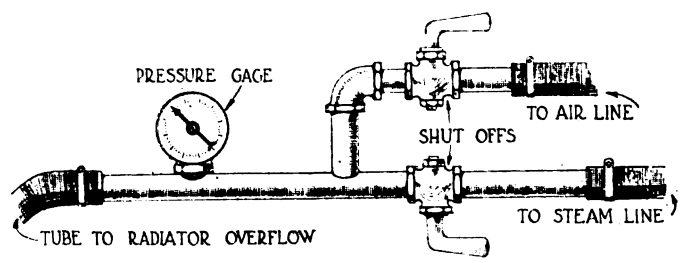
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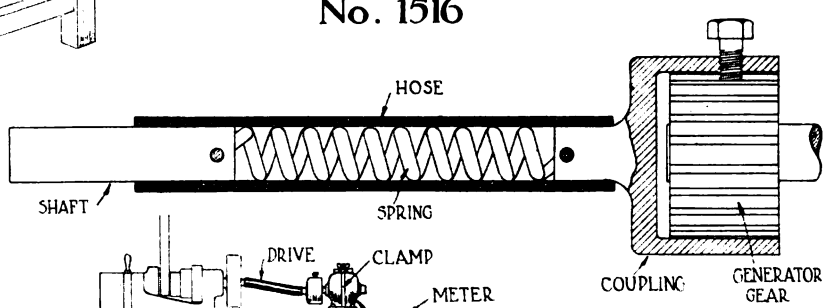
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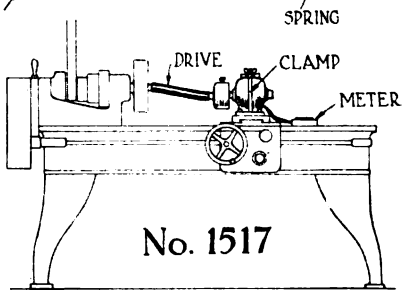


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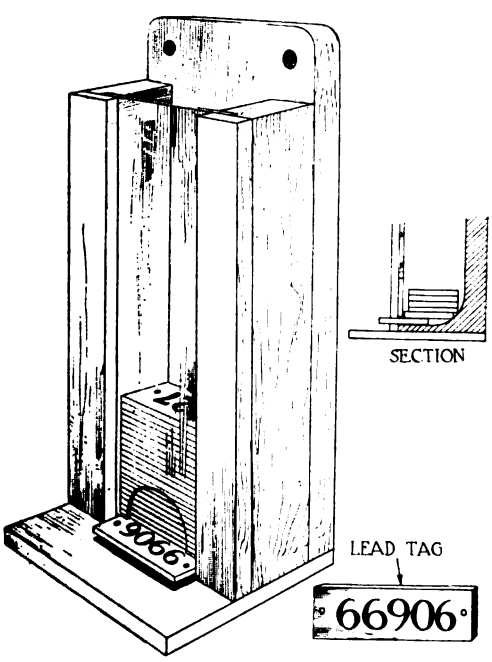


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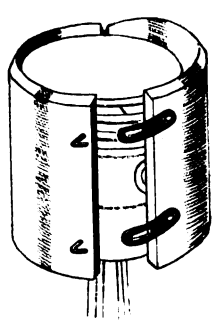




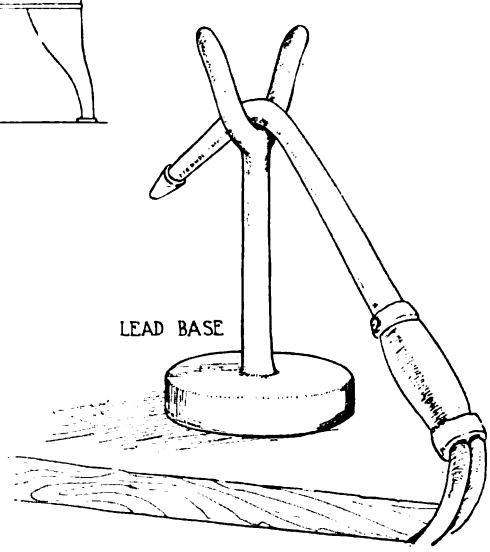
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Winter Business

Keep Up the Work

Here's How

One Dealer Is Boosting Winter Business



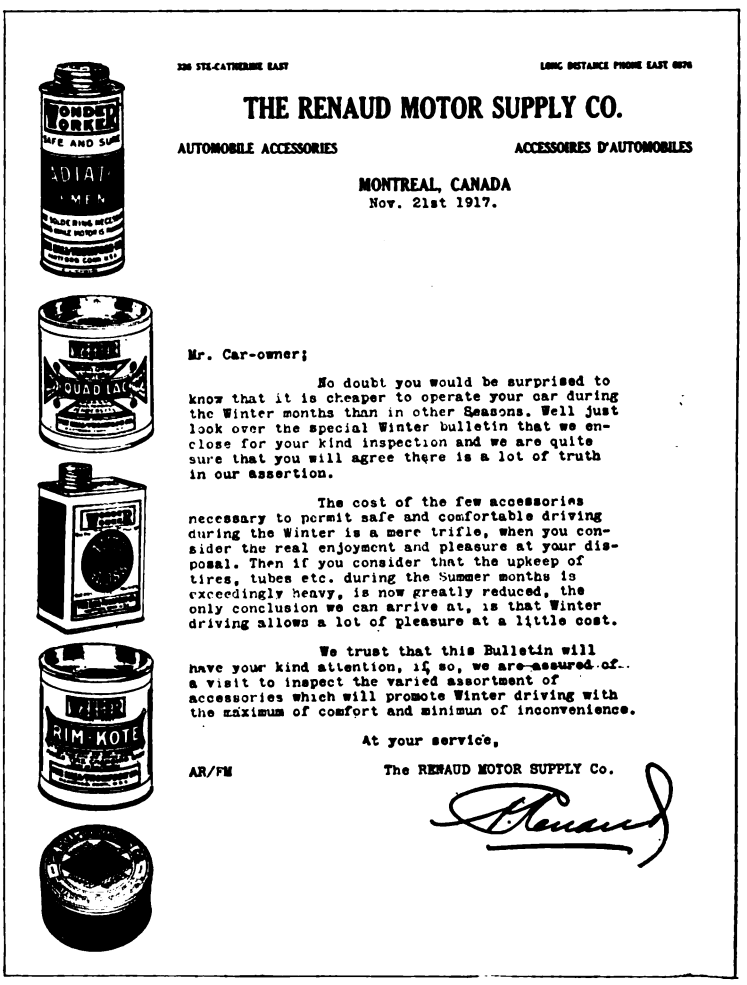
WINTER
BULLETIN
D'HIVER

LA CIE RENAUD D'ACCESSOIRES D'AUTOMOBILES
326 STE-CATHERINE EST

THE RENAUD MOTOR SUPPLY CO.
MONTREAL, CAN.

Ce Bulletin est publié dans l'intérêt du public automobiliste, afin de faire connaître les détails nécessaires pour le bon fonctionnement d'une machine durant les mois d'hiver.

This Bulletin is compiled to convey to motorists helpful suggestions which will make your winter driving as enjoyable as during summer months.



326 STE-CATHERINE EAST — LONG DISTANCE PHONE EAST 6976

THE RENAUD MOTOR SUPPLY CO.

AUTOMOBILE ACCESSORIES — ACCESSOIRES D'AUTOMOBILES

MONTREAL, CANADA
Nov. 21st 1917.

Mr. Car-owner;

No doubt you would be surprised to know that it is cheaper to operate your car during the Winter months than in other Seasons. Well just look over the special Winter bulletin that we enclose for your kind inspection and we are quite sure that you will agree there is a lot of truth in our assertion.

The cost of the few accessories necessary to permit safe and comfortable driving during the Winter is a mere trifle, when you consider the real enjoyment and pleasure at your disposal. Then if you consider that the upkeep of tires, tubes etc. during the Summer months is exceedingly heavy, is now greatly reduced, the only conclusion we can arrive at, is that Winter driving allows a lot of pleasure at a little cost.

We trust that this Bulletin will have your kind attention, if so, we are assured of a visit to inspect the varied assortment of accessories which will promote Winter driving with the maximum of comfort and minimum of inconvenience.

At your service,

AR/FM — The RENAUD MOTOR SUPPLY Co.

IT is very cold in Montreal, but that didn't prevent the Renaud Motor Supply Co. from making a drive on Winter Accessories. It mailed out the letter shown above to every firm in its territory that uses cars or trucks for commercial purposes, and with it sent its Winter Bulletin. This company is a jobber, but also has a large retail store.

Much of the trade in Montreal is French, so part of the bulletin is in that language. "Bulletin d'Hiver" means "Winter Bulletin," so you can see how the two terms are cleverly linked together on the front cover.

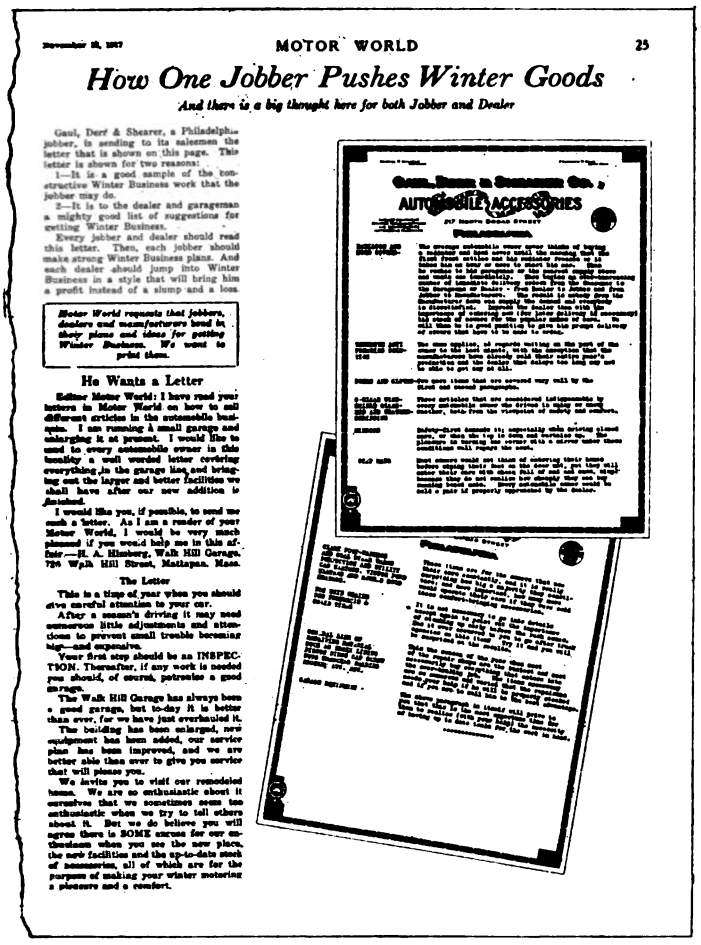
This bulletin was also sent to dealers accompanied by a discount sheet.

The mails are one of the cheapest means of getting Winter business. A letter that costs a few cents may bring in profits amounting to dollars, or a telephone call may net big returns.

Send YOUR Ideas

This Winter Business Department wants to know how dealers, jobbers and garagemen are getting Winter Business. Send your ideas.

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December 28, 1917 MOTOR WORLD 25

How One Jobber Pushes Winter Goods

And there is a big thought here for both Jobber and Dealer

Gaul, Derr & Shearer, a Philadelphia jobber, is sending to its salesmen the letter that is shown on this page. This letter is shown for two reasons:

1—It is a good sample of the constructive Winter Business work that the jobber may do.

2—It is to the dealer and garageman a mighty good list of suggestions for getting Winter Business.

Every jobber and dealer should read this letter. Then, each jobber should make strong Winter Business plans. And each dealer should jump into Winter Business in a style that will bring him a profit instead of a slump and a loss.

Motor World requests that jobbers, dealers and manufacturers send in short plans and ideas for getting Winter Business. We want to print them.

He Wants a Letter

Editor Motor World: I have read your letters in Motor World on how to sell different articles in the automobile business. I am running a small garage and enlarging it at present. I would like to send to every automobile owner in this locality a well worded letter covering everything in the garage line and bringing out the larger and better facilities we shall have after our new addition is finished.

I would like you, if possible, to send me such a letter. As I am a reader of your Motor World, I would be very much pleased if you would help me in this affair.—H. A. Hinberg, Walk Hill Garage, 726 Walk Hill Street, Mattapan, Mass.

The Letter

This is a time of year when you should give careful attention to your car.

After a season's driving it may need numerous little adjustments and attentions to prevent small trouble becoming big—and expensive.

Your first step should be an INSPECTION. Thereafter, if any work is needed you should, of course, patronize a good garage.

The Walk Hill Garage has always been a good garage, but to-day it is better than ever, for we have just overhauled it.

The building has been enlarged, new equipment has been added, our service plan has been improved, and we are better able than ever to give you service that will please you.

We invite you to visit our remodeled home. We are so enthusiastic about it ourselves that we sometimes seem too enthusiastic when we try to tell others about it. But we do believe you will agree there is SOME excuse for our enthusiasm when you see the new place, the new facilities and the up-to-date stock of accessories, all of which are for the purpose of making your winter motoring a pleasure and a comfort.

How One Jobber Used the Idea of Another Jobber

THE cut above is a page that appeared in the Winter Business Department of Motor World, Nov. 28. As soon as this page was seen by W. H. Rowerdink & Son, a jobber in Rochester, N. Y., the company took the Gaul, Derr & Shearer letter, put it on its own letter head and sent it to its salesmen.

Thus the Winter Business ideas that a Philadelphia jobber has scattered in his territory have been scattered in the Rochester territory. It would be fine if they were scattered throughout the United States.

As was said Nov. 28, these ideas are of value to the dealer. They suggest lines of Winter Business activity, each of which means Winter Profits.

One thing dealers should remember: Stocking goods is NOT ENOUGH. If goods are stocked the dealer has made a start toward Winter Profits, but if he doesn't make an aggressive effort to sell these goods he is helping turn his would-be profits into losses, for goods left standing on the shelves are not a source of profit. Turnover is what counts.

Effort is the cheapest thing the dealer has. It costs nothing. It is just as cheap to hustle to sell goods as it is to hustle at something less profitable. Hustle isn't profitable unless it is along profitable lines. And time that is spent in WAITING FOR SPRING is a drag on any business. Never wait for things. Be doing something while you wait.

If you haven't started yet start NOW.

W. H. ROWERDINK & SON

MANUFACTURERS OF HARNESS, WAGONS MOTOR CAR TOPS AND HORSE GOODS

78-82 NORTH AVENUE

ROCHESTER, NEW YORK

December 3, 1917.

SALESMEN'S LETTER # 81

RADIATOR AND HOOD COVERS-	The average automobile owner never thinks of buying a radiator and hood cover until the morning that the first frost settles and his radiator freezes or it takes him an hour or more to start his car. Then he rushes to his garageman or the nearest supply store and wants one immediately. Then begins an ever-increasing number of immediate delivery orders from the consumer to the Garageman or Dealer - from Dealer to Jobber and from Jobber to Manufacturers. The result is nobody from the Manufacturer down can supply the demand and everybody is dissatisfied. Impress the dealer then with the importance of ordering now (for later delivery if necessary) his stock of covers for the popular makes of cars. We will then be in good position to give him prompt delivery of covers that have to be made to order.
JOHNSON'S ANTI FREEZING SOLUTION	The same applies, as regards waiting on the part of the owner to the last minute, with the exception that the manufacturers have already sold their entire year's production and the dealer that delays too long may not be able to get any at all.
HORNS-	This item is covered very well by the first and second paragraphs.
OUTLOOK WIND-SHIELD CLEANERS AND WEATHER-STRIPPING	Three articles that are considered indispensable by every automobile owner who drives in rainy or snowy weather, both from the viewpoint of safety and comfort.
MIRRORS	Safety-first demands it; especially when driving closed cars, or when the top is down and curtains up. The pleasure in turning one corner with a mirror under these conditions well repays the cost.
STEP MATS	Most owners would not think of entering their homes before wiping their feet on the door mat, yet they will enter their cars with shoes full of mud and snow simply because they do not realize how cheaply they can buy running board mats. Every automobile owner could be sold a pair if properly approached by the dealer.
NON SKID CHAINS FOR PNEUMATIC & SOLID TIRES	It is not necessary to go into details except again to point out the importance of stocking up early before the rush comes. Has it ever occurred to you to go after truck agencies on this item? Try it, and you will be surprised at the results.
GENERAL LINE OF REPAIRING MATERIAL SUCH AS BRAKE LINING PISTON RINGS GAP SCREWS NUTS WRENCHES ETC.ETC.	This is the season of the year when most of the repair shops are the busiest and must necessarily buy everything that enters into the over-hauling job. The items necessary are so numerous and varied that the repairman needs your help if he will be properly stocked and if you are to sell him to the best advantage.
GARAGE EQUIPMENT	The above paragraph in itself will prove to you that this is the most opportune time for them to realize (with your help) the necessity of having up to date tools for the work at hand.

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Garageman Not Responsible for Cars Destroyed by Fire

Unless Negligence Can Be Shown—How to Keep Records of Cars Left in Storage

Editor Motor World: Can a car owner claim damages from us when he stores his car with us either for live or dead storage if his car is destroyed by fire or is stolen, when we tell him verbally or notify him afterwards by letter? Also are we liable if things are stolen out of his car while it is in our garage, when we tell him beforehand that we are not responsible for articles left in cars and when this notice is posted in conspicuous places throughout the building?

We have attached to our letter a form showing how we keep our records, with reference to cars left for dead and live storage. Kindly advise us if this record is good enough and if it is sufficient enough.

Please advise how this is handled in other garages and whether or not it is necessary to carry more insurance on the building where cars are left for storage in this way.

At the end of each month when we collect for storage charge we enter the charge in the succeeding column and issue our regular sales ticket to our general office. If the car becomes live storage the charge in that column and in that particular month will indicate it.

Do you think this is a good enough record and is it efficient enough?

This record is in book form and each month all cars in dead or live storage are checked with the record. We also place the owner's name on each car so stored.

We keep our transient record on much the same form, only it is in the form of a counter register and each customer is given his claim check in the regular way and the numbers are entered opposite his name. This record also shows in which stall his car may be found and light repairs, such as changing a tire, are also entered in a separate column. Please also advise regarding this.—HAVRE COMMERCIAL CO., Havre, Mont.

As a garageman is not an insurer of property left in his care he is not responsible if the car is destroyed by fire unless the fact appears that he was so negligent that he can be charged with having failed to use ordinary care to preserve the property left in his charge. Of course, if the garageman were so negligent as to be chargeable for the loss of a car, the writing of a letter after the fire occurred would not bind the owner.

If an agreement were made beforehand, relieving the garageman of any responsibility for the loss, that would be a different proposition. The responsibility of a garageman for cars stolen is similar to his responsibility for goods burnt up.

Ordinarily when small articles of personal property are left in a car which is stored at a garage, the garageman is not responsible for their loss unless the owner previously called his attention to the fact that he was leaving the articles in the car and the garageman expressly or impliedly consented to take charge of them.

[As to your form, it is sufficient if it answers the purpose, which is about all that can be said for any form or system. Law does not require specific types of form in cases like this. Ask yourself: If you went before a jury with this form would you be able to show them the facts in the case so they would have no doubt, or do you think your business requires something else? From a business standpoint the form seems to be all right. Your transient form seems to be sufficient. If these forms or any other forms tell you what you ought to know about your business they are sufficient. That is the only test that can be applied.

[As to insurance, it would seem that you should pay regular garage rates, but it is difficult to answer your question fully unless we know insurance conditions in your town and what you are now paying. We suggest that, no matter what you are paying, you consult a good insurance man and ask him if there are not a few little changes you can make that will greatly affect your rate. Sometimes dealers have found that amazingly inexpensive changes make a big difference.—EDITOR.]

Who Is Responsible ?

Editor Motor World: Recently a car was driven into our garage and left there while the passengers went to the hotel for lunch. I was out at the time and when the man in charge was asked if the robes could be left in the car he said yes. I am never responsible for robes and things left in a car brought to my garage unless they are locked up in the office. When the people came back from the hotel they claimed that a robe was missing and demanded that I pay for it. When is a garageman responsible for things left in a car if he has a rule that they must be locked up?—M. M., Boston, Mass.

Answer—I should say that a good example of when a garageman is liable for personal property left in his care would be your own case. The motorist asked the man you left in charge if the property was safe, and he agreed to care for the property until the motorist returned. Of course, in your absence, the man you left in charge was acting for you, and anything which he did would be binding on you even though you might have had a rule that things must be locked up and had signs displayed calling attention to that fact. Ordinarily a garageman is not responsible for personal property left in a stored motor car.

Havre Commercial Co.

MONTHLY STORAGE

Owner's Name	Post Office	Date In—Out	Kind of Car	Dead or Live	Jan.	Feb.	Mar.	April	May	June	Remarks
John Doe.....	Havre.....	Jan. 1	Ford....	Dead...	5.00	.....	.....	.....	.....	.....	Left for six months

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New Accessories At the Show

As usual, the New York show has brought into the spotlight a wealth of new accessories which will help to keep the cash register jingling and a balance on the proper side of the ledger

Kellogg Air-Cooled Garage Pump

A four-cylinder, heavy-duty, electrically-driven, air-cooled garage pump, with poppet valve in the head. Cylinders are 1⅜ in. bore and 1 1/16 in. stroke, having a capacity of 1.6 cu. ft. of free air per minute. The regular equipment includes an automatic cutout which stops the motor when the tank pressure reaches 200 lb. per sq. in. The motor is ¼ hp. for either alternating or direct current. Price, $175 with alternating-current motor, or $165 with direct-current motor.—Kellogg Mfg. Co., Rochester.

Kellogg Combination Grease and Oil Gun

This is made with two 6-in. curved spouts for use with oil or grease. A powerful cut rack and pinion movement gives the necessary leverage to handle heavy grease. A special type of piston insures powerful suction. The threads in both cap and valve are extra heavy, to guard against stripping. The length of barrel is 8¼ in., diameter 1⅝ in., and capacity 8 oz. Price, $2.50.—Kellogg Mfg. Co., Rochester.

Kellogg Compound Pump

Two- and three-cylinder hand-operated tire pumps have superseded the single-cylinder pump on account of the greater efficiency and ease of working. They are equipped with renewable stuffing box packings, prepared by a secret process. Furnished with large handles and foot pieces of extra strength. The two-cylinder pump is provided with a 20-in. hose and the 3-cylinder with 36-in. Prices, $4 and $6 respectively.—Kellogg Mfg. Co., Rochester.

Letts Headlight Deflector

A metal deflector held in place within the headlamp by the bulb, which is screwed through a round opening at the top of the deflector. Projecting double oval wings reflect the ray backward and outward and direct it downward without absorbing light. Can be adjusted so that the direct ray strikes the road at any required distance. It fits all sizes of lamps, and requires no tools for adjustment. Price $1 per pair.—Hill-Smith Metal Goods Co., Boston.

Cowles Window Lift

A window lift installed on the filler board of the door as a unit. It is operated by a small nickeled crank, and so constructed that the glass locks itself automatically every half inch, both in raising and lowering. The automatic lock only operates when the hand is removed from the crank.—C. Cowles & Co., New Haven.

Cowles Concealed Toilet Case

A flush-fitting toilet case of mahogany, with nickeled edges, and equipped in a wide variety of styles, for both men and women Opened by a push-button.—C. Cowles & Co., New Haven.

Cowles Window Channel

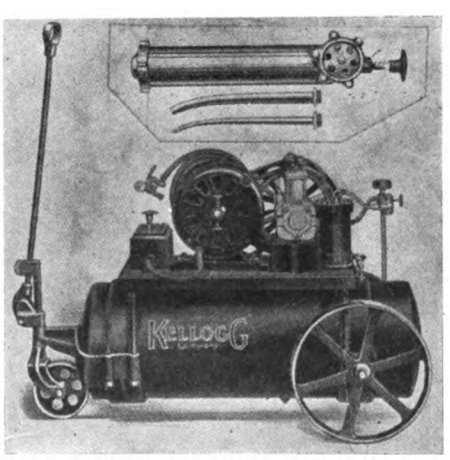
This is a japanned-on-steel upper felt-lined channel for windows and door glasss. It is of ample size, ⅞ in. high by ⅝ in. wide.—C. Cowles & Co., New Haven.

Cowles Inside Tonneau Light

A very small flush type inside tonneau light, 1½ in. over all. Its size permits it to be used where space for installing is limited. Finished in nickel.—C. Cowles & Co., New Haven.

Cowles Special Dome Light

These are cut-glass lights, in exclusive patterns, for different makers or owners. They are cut to order, with any design, and serve as distinguishing marks. They are made in all sizes and types for every kind of car.—C. Cowles & Co., New Haven.



Kellogg air-cooled garage pump

House-Type Wire Wheel

A wire wheel designed for Ford cars, locked by the hub cap, which tends to tighten itself as the car advances. An inner pawl engages slots on the interior of the hub which prevents the wheel from becoming loose should the car be backed for any distance. An ordinary wrench removes the wheel readily, the pawl being held out of action by the surface of the wrench when applied to the hub. They are finished in standard enamel, black, white or red. List price, $50 per set.—Wire Wheel Corp. of America, New York.

Columbia Starting Batteries

A unit cell battery using no sealing compound between jars and case. It is sealed only in post-strap wells, so securely as to prevent any danger of the electrolyte escaping into the bottom of the case. The parts are all standardized, so that any plate combinations may be used with the same covers, connectors, etc. The case is impregnated by a special process which prevents penetration of the acid, and no corrodable metal is used in the construction. The jars are tested for 30,000 volts and have a tensile strength of 4000 lb. The polarity is permanently indicated by means of colored sealing rings, red for the positive and black for negative. Made in all sizes and adapted to every make of car. List prices range from $34.50 to $70.75.—National Carbon Co. Cleveland.

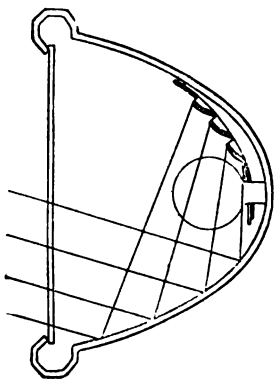
Non-Gran Bushings

Non-Gran high-speed bearing bronze is now made up in finished bushings especially adapted for Ford cars, for the greater convenience of dealers and repairmen. These are carried in stock for immediate shipment.—American Bronze Corp., Berwyn, Pa.

Knickerbocker Forma-Tractor

A 3-ton tractor for road use, consisting of a heavy channel-steel frame, which is placed under and supports the rear of a Ford car; a 2¼-in. round axle with heavy artillery-type wheels, provided with roller bearings, internal gear drive, external contracting 19 x 2½-in. brakes, operated by a heavy lever anchored on the tractor frame. The table carrying the fifth wheel attachment is supported by springs 32 x 2½ in., set on a solid axle. It has a wheelbase of 102 in., with an option of 114 in. The gear

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Letts ray deflector

ratio is 14 to 1, and the speed is 6 to 10 m.p.h. When the load is properly distributed 1 ton rests on the tractor wheels and two on the trailer wheels. The tractor is simply clamped to the Ford frame without drilling or cutting, and can readily be removed from one car to another. In attaching, the Ford is not dismantled, and every part is utilized except the rear wheels and rear fenders. Price, $450 f.o.b. New York. Cost of attaching, $10.—Knickerbocker Motors, Inc., New York.

Splitdorf Munger Piston Rings

This is a one-piece concentric piston ring, the joint being made by a double cut giving a close seat at an angle with the face of the ring. It is claimed that the expansion joint of the ring is so designed that there is no change in its tightness due to wear. The surface of the ring coming in contact with the cylinder wall is not polished, but is finished with minute grooves to insure a perfect seat. Rings are made for all size cylinders. A special Ford assortment consists of eight regular and four oversize rings, with grooving tool, insertion tool, and full directions for use.—Splitdorf Electrical Co., Newark.

Munger Piston Regrooving Tool

A regrooving tool provided with an adjusting screw to adapt it to different size cylinders. Used to true up the groove to the ring, and especially adapted for use with the Munger "always-tight" piston ring. Its distinctive feature is that with its use it is not necessary to disconnect the piston from the connecting rod. It is said that its work is as exact as that of a lathe.—Splitdorf Electrical Co., Newark.

Minute Demountable Wheel

A demountable wheel for Ford cars. A set consists of four main hubs to fit on the axle spindles, all the auxiliary parts for five wheels, an extra wheel, and the Minute wrench. The Ford wheels are retained, the hubs only being taken out and replaced by Minute hubs. The extra wheel furnished is 30 x 3½, plain clincher run for Ford cars. Price, including a full set of Minute hubs and an extra flange, $30.—Hill-Smith Metal Goods Co., Boston.

Wilson Woven Hair

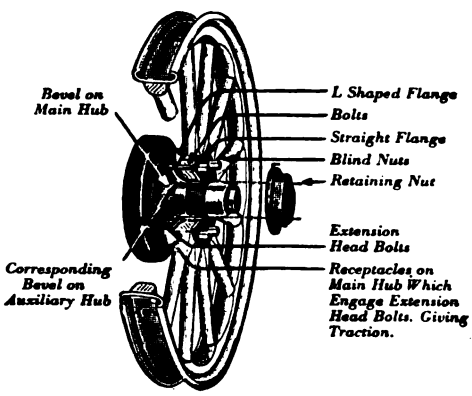
A specially treated upholstering hair adapted to automobile seats, in which the hair is woven on burlap. It is made in sheets from ½ to 3 in. thick, and can be cut to the exact shape of the cushions.—Wilson & Co., Chicago.

Stromberg Carbureter

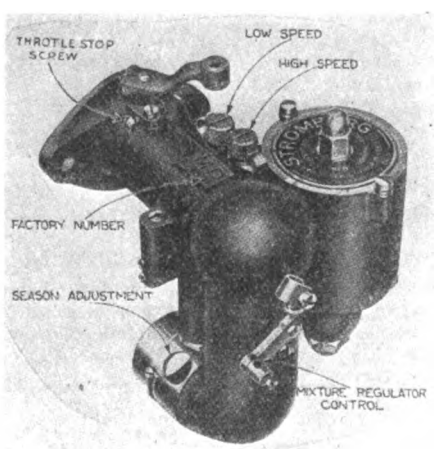
A plain tube type carbureter for Dodge cars, having the air passages of fixed size while the gasoline is automatically measured by the flow itself for all speeds of load by means of the air-bled nozzle construction. The dash control operates a butterfly valve in the air horn of the carbureter. It is interchangeable with the regular equipment. Price, with all fittings, $20.—Stromberg Motor Devices Co., Chicago.

Raybestos Disk Clutch Facings

These disk-clutch facings are now being furnished direct to dealers, packed in boxes ready for use, and marked for car, type and size. They are adapted to every type of car. Each box contains 20 rings. Dealers' prices vary from 39 cents to 95 cents per



Minute demountable Ford wheel



New Stromberg for Dodges

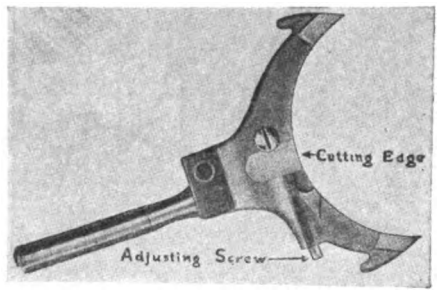
ring, according to size.—The Raybestos Co., Bridgeport.

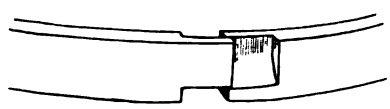
Mosler Vesuvius Plugs

The Mosler plugs are now being made in two new styles for tractors and aircraft. The insulation used is Vitite, an American product, which has been developed to take the place of European insulators. The tractor types are ½ and ¾ in. respectively, the former for use in all tractors of ½-in. pipe thread using a water jacket, and the latter especially for the Hart-Parr and Fairbanks-Morse tractors. Price, $1.—A. R. Mosler & Co., New ork.

Burke Condenser

A condensing coil for all water-cooled cars, designed to collect the alcohol vapor from the radiator and return it in liquid form. It consists of a shell to receive the vapor, the lower end of which is screwed into the radiator in place of the regular cap. A worm is connected to the top and bottom of the shell and a double-acting relief valve is mounted at the top of the shell to relieve





Above—Munger piston regrooving tool. Below—New Munger-Splitdorf piston ring

pressure in the radiator. When this device is used the overflow pipe is closed, preventing the loss of fluid, and keeping the proportion of alcohol and water constant. When steam is generated in the radiator any excess over that condensed is discharged through the relief valve in full view of the driver instead of through the overflow pipe, where it is not visible. The size of the standard model for large cars is 5½ in. The Little Giant model for small cars is 2½ in. Prices, $10 and $5 respectively.—Automobile Device Co., 1619 Samson Street, Philadelphia.

Halladay Bumper

This is a spring steel bumper which is reinforced at either with coil springs designed to absorb the shock if the bumper hits any object at an acute angle.—Asch & Co., New York.

Lamp Post Tire Carrier

This is a bracket attachable to the lamp post of any Ford car, and provided with straps by means of which the tire is held fast. Price $2.—Asch & Co., New York.

Sternwear Inner Tubes

Sternwear inner tubes are several times as thick as the conventional inner tube, and are reinforced with two strands of fabric inlay. Made in sizes from 30 x 3 in. up to 37 x 5 in. Prices $8.70 to $25, depending on size.—Sterns Tire & Rubber Co., New York.

New Waltham Speedometer

This differs from the standard type in the omission of the figure representing tenths of a mile in the total record and the reduction of the trip total from 999.9 to 99.9 miles, measured by tenths as before. The instrument is equipped with a new type of shaft composed of four strands of piano-wire wound helically about a core of longitudinal wire. This construction permits a much greater bend in the shaft than the universal joint construction formerly used. Price $50 complete with eight-day clock.—Waltham Watch Co., Waltham, Mass.

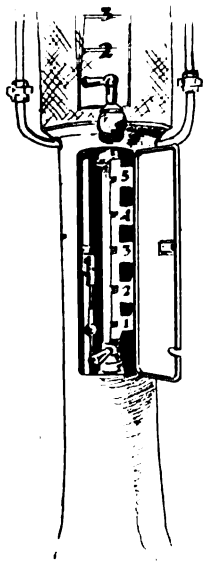
Gabriel Windshield Cleaner

The cleaner is attached to the top of the windshield frame in a fixed position and held horizontal by a coiled spring. It is actuated by a cord attached to its free end, passing around the edge of the shield and attached to the top frame. A pull of the cord clears a semicircular space in the glass and the spring returns the cleaner to its original position. Made for either wood or metal frames. Price $2.—Gabriel Mfg. Co., Cleveland.

Belknap Electrical Air Heater

This is an electrical heating unit for preheating the air taken through carbureter.

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To prevent unauthorized persons tampering with the mechanism, it has all been put inside the steel case, which can be locked —Guarantee Liquid Measure

It is arranged for any voltage, uses about 5 amperes, and may be attached to any car.—Charles H. Belknap.

Amazon Cord Tire

A new cord tire with the usual Amazon S tread is being made in the 4 x 34-in. size and all larger sizes.—Amazon Rubber Co., Akron, Ohio.

New Povasco Wheels

A new buttonlike finger grip is the feature of two wheels of the Povasco line. These grips are directly underneath the rim instead of on the inside edge, as is customary. A truck model and passenger type are offered, finished in black or tan, with malleable iron, brass or aluminum spiders.—Pouvailsmith Corp., Poughkeepsie.

Peters & Herron Tire Covers

This is a new line of tire covers of enameled duck fabric furnished in a large number of combinations of fancy colors, and made for all tire sizes.—Peters & Herron Dash Co., Columbus, Ohio.

Coffin Garage Wash Lamp

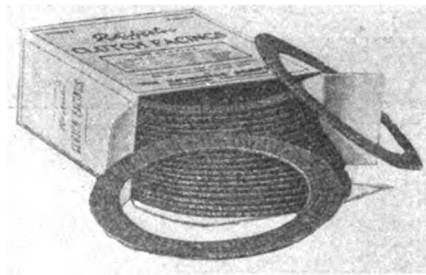
This model is similar to the previous types of garage lamps, except that it has an elbow about 4 ft. from the ground and another elbow and swivel at the top of the stand which is 11 ft. in height.—Coffin Valve Co., Boston, Mass.

New Guarantee Liquid Measure

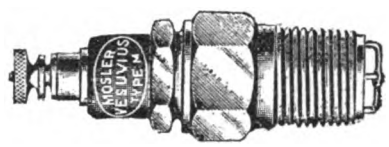
The air valve in these liquid measures has now been combined with the electrical switch into one piece of mechanism and placed inside the pedestal, so that when the metal door is locked the instrument cannot be tampered with. The new line is called the Underwriter's Model, as it was adapted in accordance with recommendations of the Board of Fire Underwriters. Price, $330.—Guarantee Liquid Measure Co., Rochester, Pa.

Centrifugal Clear Sight

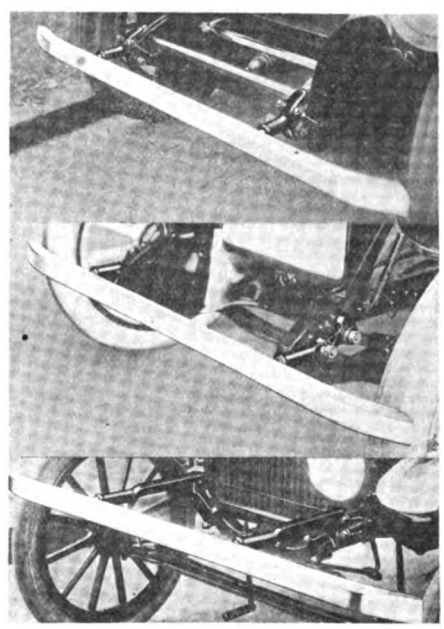
This is a wind-shield device of an entirely novel design. It consists of a circle of glass fitted into a circular hole in the wind shield and revolving at 1500 or more r.p.m., centrifugal force keeping the glass clear of rain, snow, or dirt. Power is derived from a tiny cylindrical motor 1 in. in diameter by 1½ inches in length. This is held in position by a hollow horizontal bar attached to the wind shield. The shaft of the motor is secured to the center of the revolving glass. The motor is driven from the electrical system of the car or by dry cells, the wires being connected with the motor through the horizontal bar. Six volts are required to operate the mechanism, which draws about 1 amp. Furnished as special equipment, price, $20.—Automobile Devices Co., Philadelphia.



Raybestos clutch facing is now made for disk clutches



Mosler has a new tractor plug



Ever-Good bumpers have been redesigned

Dunham Heater for Fords

This heater is mounted on a floorboard, which may be inserted in place of the regulation floorboard in a Ford car. The heat is furnished to the register from the exhaust pipe, and is evenly distributed by baffle plates in the registered drum. Price, $5. —Thomas Dunham Co., Laroy, Ill.

Rayfield Thermostat

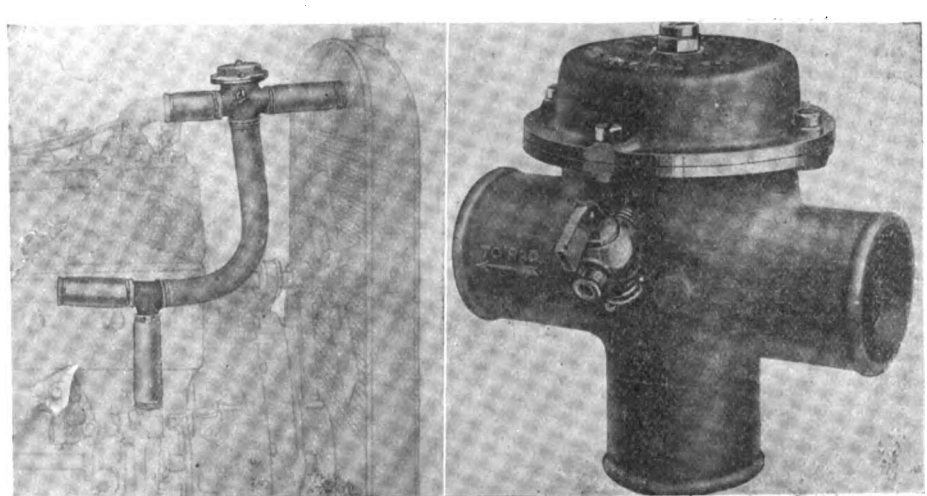
An instrument to control the cooling temperature of a motor car, truck, or tractor engine having pump circulation, known as the Rayfield Thermostat, is designed to stop circulation in the cylinder block when the engine is cold, but does not prevent water circulation in the radiator. This is accomplished by means of two butterfly valves linked together in connection with an expansion coil which opens the upper valve and closes the lower one when the circulating water reaches a temperature of 170 deg. Fahr., thus permitting circulation through the radiator. When the engine is cold the upper valve is closed and the lower one open, the water circulating through the radiator and pump only. Thus the water in the cylinder block is gradually displaced until all of the water in the system is raised to the predetermined temperature, which in this case is 170 deg. Fahr. It is claimed that by this device the water in the cylinder block can be brought to its best operating temperature in from 2 to 4 minutes. Price, $15; extra fittings varying from $1.55 to $1.05, depending upon the make of the car.—Findeisen & Kropf Mfg. Co., Chicago.

Ever-Good Bumpers

New brackets and other changes have been introduced into the Ever-Good line of bumpers, which has been completely redesigned. The most noticeable change is that most of the brackets are now tubular in shape. There are also special brackets made for cars having splash pans. The new line includes special types for Cadillac, Dodge, Ford, Chevrolet and Saxon, etc., and rear bumpers for practically all other cars.—Emil Grossman Mfg. Co., Brooklyn.

S. & M. Spotlight

A press-button switch fitted into the rear of the lamp, which turns the light either off or on by the same motion is the feature of this new spotlight. The reflector is of solid spun brass triple silver-plated. The outer casing is of pressed steel finished in black enamel, and nickel trimmed. Price, $12.50.—Consolidated Sales Co., San Francisco.

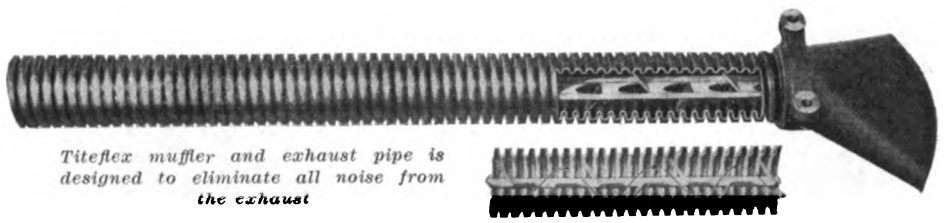


The Rayfield thermostat is inserted in the water line and controls the flow of water so as to maintain the temperature at 170 deg. Fahr.

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S & M spot lamp has an ingenious switch



Titeflex muffler and exhaust pipe is designed to eliminate all noise from the exhaust

Peerless Radiator for Fords

This combination radiator, hood and shield is an addition to the other lines of Peerless radiators, and was made particularly to convert the 1915 and 1916 Ford car into the appearance of the latest model. It gives the car a streamline effect, the hood being tapered so as to insure the proper fit and effect when assembled on a car. Price, $35.—Corcoran Mfg. Co., Cincinnati.

Titeflex Muffler and Exhaust Pipe

This is a corrugated metal pipe having a single wide deep groove of helical form, into which are screwed the fittings attached to the exhaust manifold. The corrugations permit easy bending to the desired form without flattening. The exhaust gases are deflected by the corrugation, thereby deadening the noise. The noise of the exhaust is deadened further by means of a deflector strip in the rear end, which has vanes bent in opposite directions, causing the gases to flow through a zigzag path. The pipe is fitted with a fish tail shaped end piece.—Titeflex Metal Hose Corp., New York.

A. W. Convertible Top

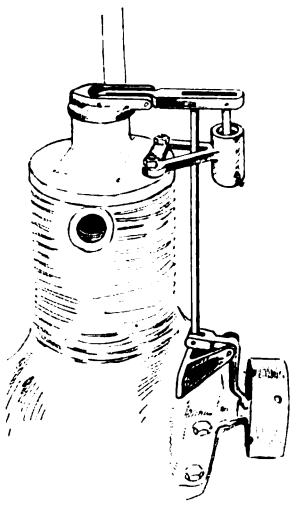
Glass panels bounded by metal strips, together with a standard A-W summer top, constitute a convertible top which makes it possible to change a touring car into an inclosed model. This model is made for all cars, and the detachable windows are held in place by patent clamps, the panels above the doors being designed to swing open with the doors.—Made by Adams-Williams Mfg. Corp., New York.

New Unloader on Curtis Pumps

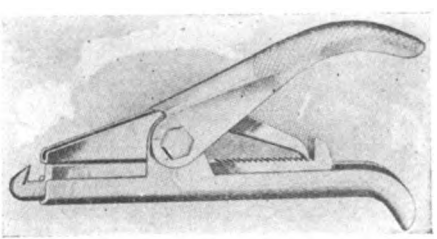
A new type of mechanical unloader for starting duty has been fitted to the Curtis air compressors. This is a safety valve, which is automatically put into use when the motor is started, so that the engine will not stop against 100 per cent pressure. As the speed increases the valve is gradually shut off. Formerly the unloading was accomplished by a hand device.—Curtis Pneumatic Machinery Co., St. Louis.

U. S. Buffer and Grinder Attachment

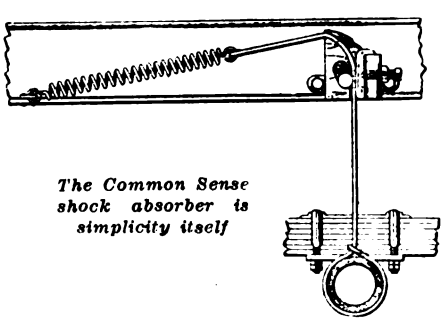
New models of U. S. air compressors are being fitted with a buffer and grinder attachment which is secured to the base of the air-compressor outfit and driven by a belt from the main shaft of the motor. The stone wheel is 10 in. in diameter, fitted at the left of the device, and a 10-in. wire buffing brush is at the right.—United States Air Compressor Co., Cleveland.



The Curtis air compressor has a new type of automatic unloading device



May's cotter pin puller does the work quickly



The Common Sense shock absorber is simplicity itself

Brewer-Titchener Self-Raising Sockets

The self-raising feature of the Brewer-Titchener one-man top sockets consists of a long coil spring concealed within the main tube, which is used in combination with the company's standard one-man type of sockets, so constructed that the weight of the complete top is counterbalanced by the spring, thus making a top which is raised or lowered with the least possible effort.—Brewer-Titchener Corp., Cortlandt, N. Y.

May's Cotter-Pin Puller

This is a device shaped somewhat like a ticket punch. The action of the handle draws in a heavy steel sliding hook which is fitted into the lower jaw of the puller. The jerk on this hook, combined with the pulling force of the operator, makes the removal of cotter pins an easy matter.—Brewer-Titchener Corp., Cortlandt, N. Y.

Asch Twin Spare Rims

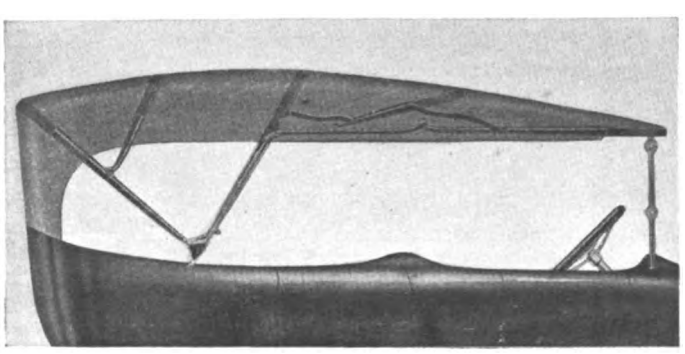
Twin tire rims for Ford, Chevrolet and Saxon cars are being made to take the place of demountable rims for the special use of the small-car owner. A display stand is furnished with each dealer's order for three or more outfits. The design fits both front and rear wheels, and is furnished for 30 x 3 or 30 x 3½ sizes. Price, $7.50.—Asche & Co., Inc., New York, N. Y.

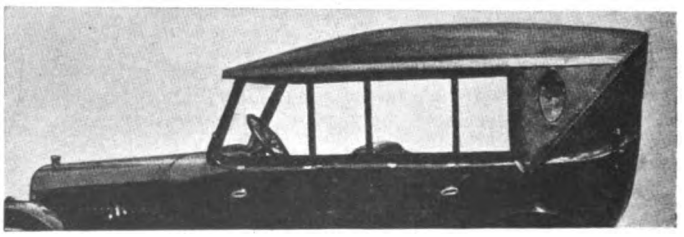
Marvel Tire Life

This is a liquid to be injected into a tire, and is compounded in such a way that it will not harden or become gummy for some time, but will remain in its original liquid state at uniform density for an indefinite time. When, however, a slow puncture is formed, the Marvel Tire Life, it is claimed, will form a thin protecting film through the action of the air stopping all leaks. One can contains enough for treating one tire. Price, $2.50 to $4.50 per can, depending on the size of tire to be treated.—Marvel Tire Life Co., Kansas City.

Common-Sense Shock Absorber

The main part of this device is bolted to the chanel of the chassis over the center of the axle. It consists of a jaw through which passes a strap. One end of the strap is drawn around the axle and the other end is secured by a small spring to the channel of the chassis 4 in. forward of the point where the main device is bolted. When the car passes over a bump the coil spring pulls up the strap, and on the rebound the jaws

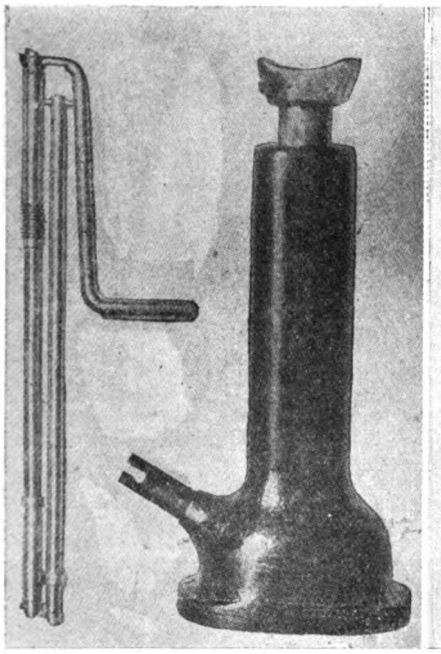




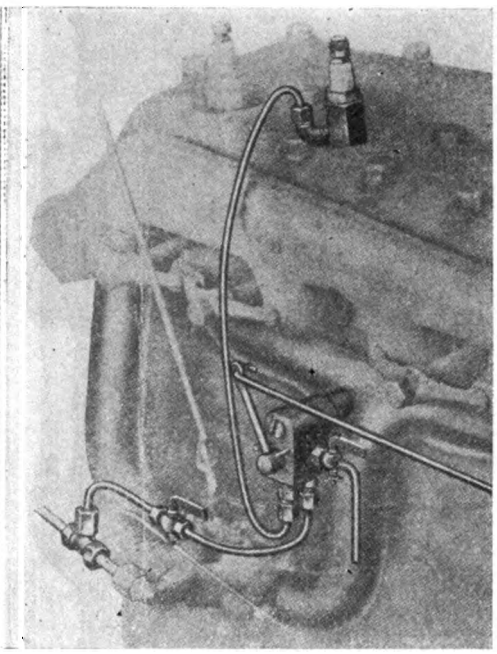
Above—The new A. W. convertible top

Left—A spring in the Brewer-Titchener bow helps lift the top

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Gibraltar gear type jack



Smith Duplex priming system

close, thus holding the strap fast and preventing a sharp return jolt. Price per pair, for light and medium-weight cars, $10; for heavy cars, $15.—Common Sense Mfg. Co., Newark, N. J.

Walden-Worcester Wrenches

Several of the former models of Walden-Worcester wrenches for Fords have been combined into new designs having several jaws, thus making new tools which do the work of a larger number of previous models.—J. H. Faw, Inc., New York.

Prismolite Sun-Ray Lens

The Sun Ray lens is a new Prismolite product which both diffuses and refracts the light, shooting a long, concentrated beam of road light ahead, but also giving the necessary side diffusion. Price, $1.75 per pair —Prismolite Co., Columbus, Ohio.

Eureka Rim Compressor

An all-steel Eureka rim compressor of entirely new design has been added to the products of this company. The new compressor works like a jack on the ratchet-and-pawl principle. It has a 22-in. handle, and may be folded up when not in use. Price, $6.—Eureka Rim Compressor, Inc., Addison, N. Y.

Spoktite

Spoktite is a liquid to be applied to the points where wooden spokes are inserted in artillery-type wheels. The liquid is designed to keep wheels from contracting and expanding due to weather conditions. It is furnished in cans, each can being sufficient to treat four wheels. Price, $1 per can.—Liquid Wheel Tightener Co., Modesto, Cal.

Gibraltar Jack

This is a gear-type jack operated by a long handle, which makes it unnecessary for the operator to reach under the car. The height of the jack, lowered, is 11¾ in., and raised it is 18 in. It will lift a 3-ton car; weighs 9½ lb. Price, $7.50.—Gibraltar Jack Co., New York.

Cox's Reinforced Bumpers

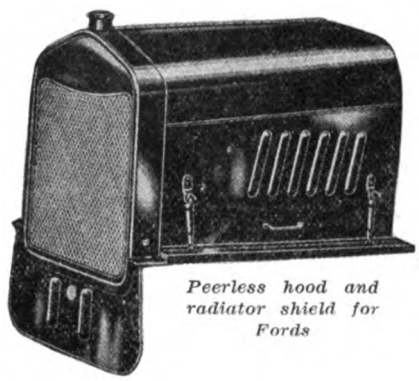
The Cox line of diamond rail bumpers has been improved by the adoption of a reinforcing metal strip, which is fitted into the bumper and extends for its entire length, excepting 2 in. on each end, allowing space for a special cap expander. The reinforced diamond rail is furnished in three sizes, 1¼, 1½ and 1¾ in. The cap expanders are new design for holding the bumper caps in place. The company is making new brackets for bumpers for Overland, Nash, Dodge and Paige cars, and rear brackets for bumpers on Maxwell, Cadillac, Packard and Marmon cars.—Cox Brass Mfg. Co., Albany, N. Y.

Rico Pedal Covers

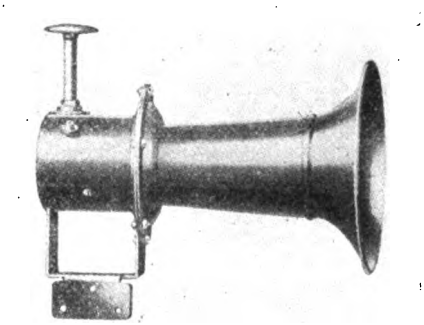
Rico Pedal Covers of live rubber are now made with a mechanical adjustment, and may be secured by means of clips to all sizes of square and oblong pedals. Price per pair, $1.75 and $1.50.—H. C. Rich Auto Accessories Co., New York.

Warnola Products

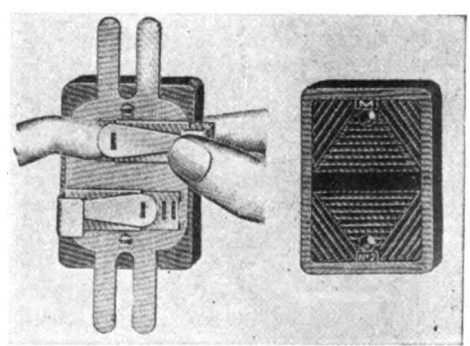
Several new horns have been added to the Warnola line which was exhibited at the New York show. Among these is a model styled the "Admonitor," which is a hand-operated signal. It is furnished in either left-hand or right-hand models, although the left-hand type will always be supplied unless the other is definitely specified. The finishing is black enamel, and the construction is metal throughout. A feature of this model is its simple provision for oiling. All the oiling is done at one point, which takes care of the entire operating mechanism. Admonitor may be attached to any automobile by means of a metal bracket which is included in the outfit. The bracket has a side plate, perforated with three holes, through which screws are inserted for attaching the outfit to a car. Price $4.00. The Warnola catalog also contains a number of parts for automobiles. Among these is a connecting rod for Fords, which is a drop forging, bushed with babbitt metal, machined and finished. Price, $1.50.—Warnola Mfg. Co., New York.



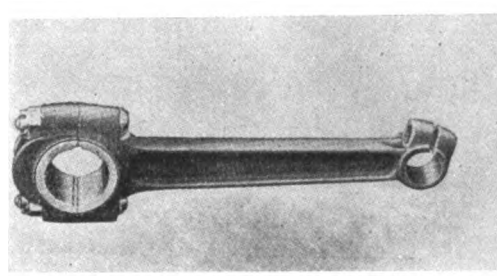
Peerless hood and radiator shield for Fords



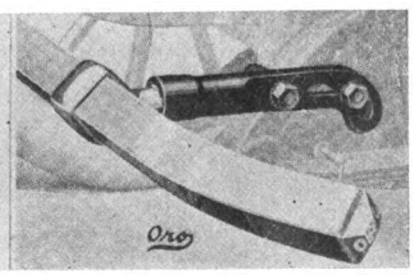
Admonitor hand signal



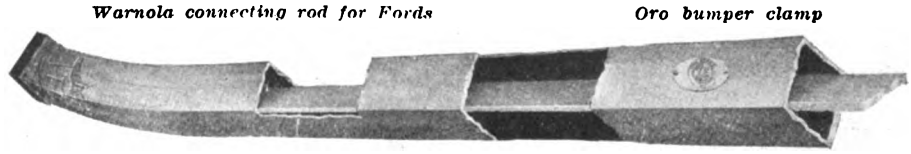
Rico adjustable pedal pad



Warnola connecting rod for Fords

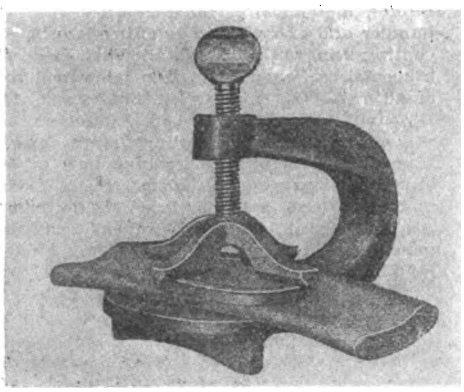


Oro bumper clamp



Cox diamond rail bumpers are now reinforced with a central metal strip

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National 5-minute vulcanizer

Foot Air Accelerator

This device, operated by a pedal from the driver's seat, is an air valve leading into the intake manifold and taking heated air from the exhaust manifold. It is designed especially for Ford cars. Price, $6.—Foot Air Accelerator Co., Cincinnati, Ohio.

Ajax Watch Holder

The Ajax watch holder is a concave, nickel-plated metal ring, made to fit over the face of a watch, and punched with screw-holes, so that it may be screwed onto the dash.—Charles E. Miller, New York.

H. & N. Kerosene Carbureter

Unusual in design is the new H. & N. kerosene carbureter for Fords, Dodges, and Metz cars. This consists, in the main, of the standard H. & N. carbureter fitted, however, with a kerosene bowl, which draws fuel from the main kerosene tank, and a gasoline bowl which supplies the fuel from a small gasoline tank for starting. The intake manifold is heated by the exhaust pipe, but the engineers found that the heat needed for breaking up the kerosene was in danger of being too high and causing pre-expansion before the gas reached the cylinders, thus losing compression. The kerosene, therefore, is heated and then partially cooled by means of fins on the intake manifold.—H. & N. Mfg. Co., New York.

Smith Automatic Primer

The Smith automatic primer is a device which injects a spray of gasoline through a pipe at the top of one of the cylinders at the ignition point of one of the spark plugs. The mechanism requires a special type spark plug and an attachment on the intake manifold. Price, $10.—Fred Smith, Stamford, Conn.

Sundermann BB Carbureter

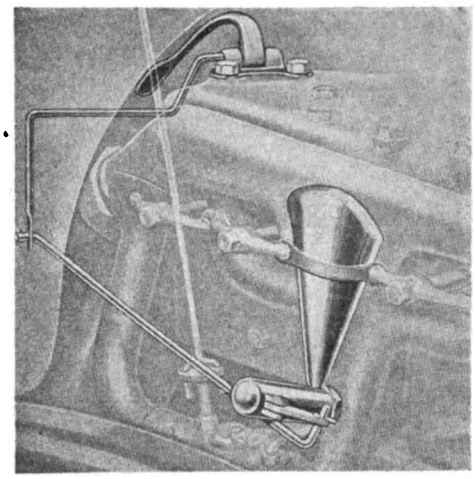
This new model Sunderman carbureter is similar in principle to the other Sunderman types, the chief change being that the tank is now under the jets instead of at the side of the carbureter. The new construction is designed to give a longer sucking distance, with consequent better vaporization, and as it gives greater depth, there is less chance of the well being sucked dry momentarily when the car is being tipped while rounding a curve or climbing hills.—Sunderman Corp., Newburgh, N. Y.

Magic Rubber Mend

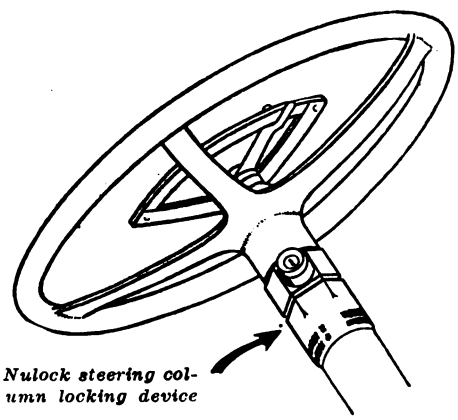
Magic Rubber Mend is a liquid designed to take the place of vulcanizing. Furnished in cans. Price, $1.—Phillips-Hall Co., New York.

English & Mersick Products

Several new devices are shown by the English & Mersick Company, including patent stump joints for landaulet, landau and Victoria tops, swinging-door fixtures and folding-door hinges.—English & Mersick Co., New Haven, Conn.



Foot air accelerator



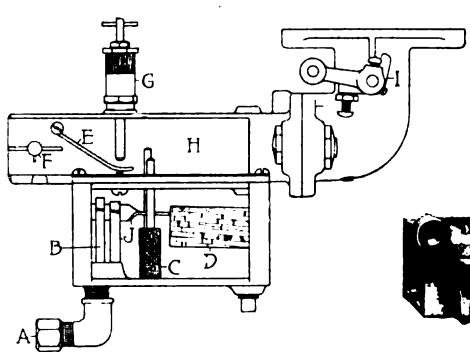
Nulock steering column locking device

National Spark Plug

This plug has a ring instead of the usual style of electrode, the spark gap being continuous across the space between the ring and the outer shell.—National Motor Supply Co., Newark, N. J.

National Five-Minute Vulcanizer

This model has been changed by concaving the legs so that a circular as well as an oblong patch may be made conveniently and the appearance of the device is also thereby improved. An impregnated cardboard disk furnishes heat.—National Motor Car Supply Co., Newark, N. J.



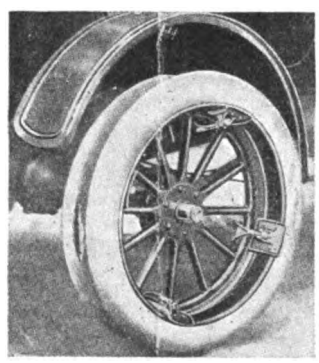
The new Sunderman BB carbureter has the float beneath the nozzle

Smith Signal Switch

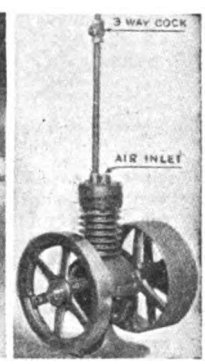
A new single-handed switch has been introduced on Smith single lamps which performs the three operations by means of one handle. A motion to the left shows left on the signal, a motion to the right shows right, and when the switch handle is pulled out at any point it registers stop on the signal. A buzzer warns the operator any time the signal is in use.—Smith Signal Corp., New York.

Nulock

Nulock is a sliding metal collar which fits over the stearing post, and when locked with a Yale key disconnects the steering wheel from the steering mechanism, allowing the former to turn freely. Price, $14.50.—Nugo Device Corp., New York.



Twin spare rim for Fords



Au-To Compressor

Saferlite

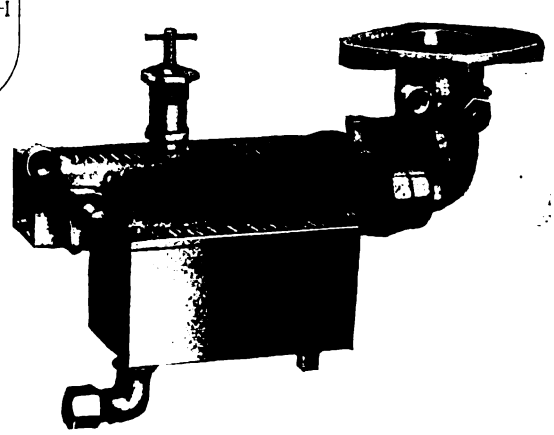
The new Saferlite deflecting lens uses horizontal prisms on the upper half of the lens and vertical prisms on the lower half. Saferlite Lens Co., New York.

Au-To Air Compressor

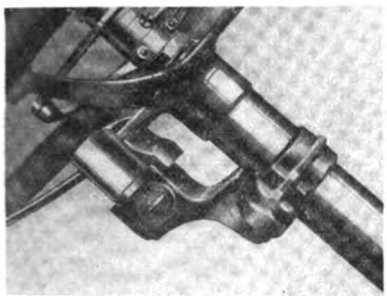
A smaller model air compressor has been added to the line. It is of the same general construction as the other models except for the difference in size, the motor having a 2-in. bore and a 2½-in. stroke and a 12-in. flywheel. The overall height is 16 in., the maximum pressure 200 lbs., and the weight about 50 lbs. Price, $50.—Au-To Compressor Co., Bloomington, Ohio.

Schrader Tire Accessories

Two new tire accessories have been added to the Schrader line. One of these is an extra length sliding dust cap to be used on wire wheels, where the tire has the stand-



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ard length valve. The other is a change in the pump connection which now has an extra cup screwing onto the valve, which may be removed so that the washer is accessible. —A. Schrader's Son, Inc., Brooklyn, N. Y.

Oro Formost Bumper

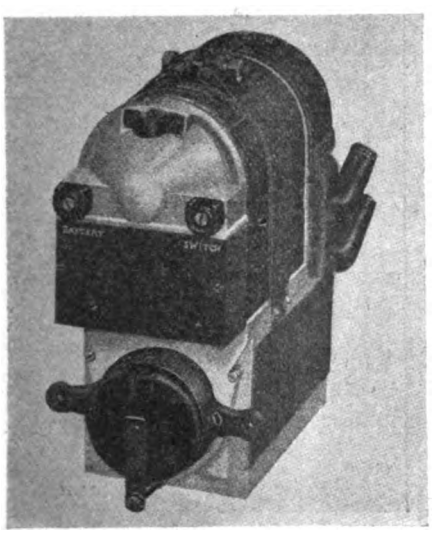
The Formost bumper of the Oro line is fitted with a special clamp which attaches to the springs of most cars, with the exception of Ford, Chevrolet, Saxon and Dodge, Price $8.50 up.—Au-To Compressor Co., Bloomington, Ohio.

Derf Spark Plug

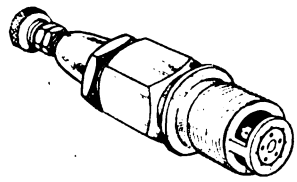
The Derf spark plug has 360 ignition points. The center electrode terminates in a disk.—Sales Service Co., New York.

New Goodrich-Lenhart Products

Three new products in the Goodrich-Lenhart are a steering column lock, a cut-out, and a thermostat for Fords. Deliveries on these will be coming through about Feb. 1. The lock consists of a patent clamp which fits over the steering wheel column and one of the wheel spiders; and is held in place by a Yale lock. The cut-out, which is described as a motor testing valve, has a bell-shaped mouth and is so constructed that it prevents all gas from passing into the muffler when closed. The thermostat for Fords is an automatic carburetor regulator which is inserted in place of the regular Ford carburetor needle. The automatic adjustment is caused by a coil of sensitive metal which contracts and expands in response to cold and heat, thus forcing the needle down or up in response to weather condition. The thermostat lists for $5.—Goodrich-Lenhart Mfg. Co., Philadelphia.



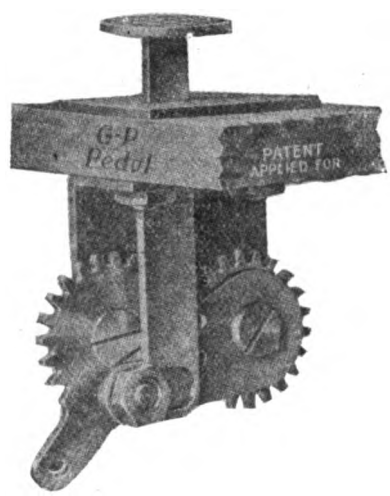
Eisemann combined magneto and generator



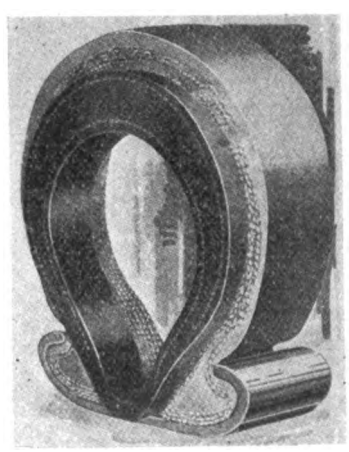
Left—Goodrich steering wheel lock.
Above—Derf 360-point spark plug.
Right—Goodrich muffler cut-out

Eisemann Magneto-Generator

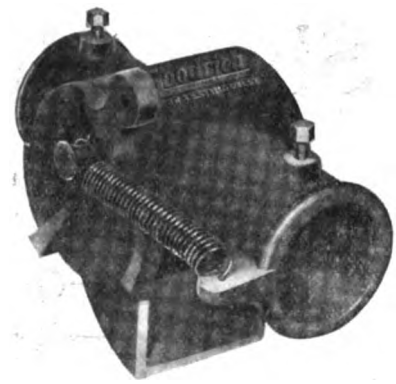
This device is unusually compact and combines a generator with a magneto making a single installation which is interchangeable with the regulation magneto on a car. This mechanism utilizes the regular magneto drive shaft, the magneto bracket and even the same fastening screws. It is interchangeable with the standard magnetos on the market without requiring any change on the drive or bracket. The generator which is directly above the magneto is an independent unit, its excitation being electro-magnetic. It is made for 12 and 6-volt systems. The generator field coil is compound-wound with the shunt coil normally exciting the fields. The single wiring system is used. A switch panel in dull black is furnished.—Eisemann Magneto Co., Brooklyn, N. Y.



G. P. muffler cutout pedal



Sternwear reinforced tube



J. & B. Gasoline Injector

This is a priming device controlled from the dash, and takes gasoline direct from the gas line and delivers a rich mixture directly into the intake ports of the cylinders.—Price, $3.50.—J. & B. Mfg. Co., Pittsfield, Mass.

New York Coil Ignition for Fords.

This is a new non-vibrating coil which cannot suffer from welding or sticking because a mechanical finger forcibly separates the contacts at the completion of each sparking period. The circuit is also made in a positive mechanical manner so that failure of operation cannot occur. The system works equally well on dry cells or storage batteries and provision is made for connecting either. The system is installed by removing the present timer and replacing it with an elevating gear bracket upon the top of which is mounted a high tension distributor. The present coil box together with all four units is discarded. A handsome panel containing a two point switch with removable keys occupies the position formerly taken by the coil box. Price $20. New York Coil Co., New York.

G-P Pedal

The new G-P pedal for muffler cutouts is entirely steel and strong enough to operate any cutout spring. It is so designed that by releasing one screw it can be changed to lift or pull in any direction desired. Geared compound leverage makes it easy to operate. On the G-P pedal the locking device is on the bottom plate. Thus the pedal can be fastened to a steel or wood floor board of any thickness without altering its throw. It travels in a straight line and needs but one round hole drilled in the floorboard. Price $1.50.—Edward A. Cassidy Co., New York.

Peteler Jack

This jack has several improvements over previous models. It has a telescoping feature which permits the jack to be either raised or lowered without the operator reaching under the car. There is a removable plate screwed on at one side of the mechanism which makes all the moving parts accessible. The lifting bar is of cold rolled, high carbon steel, the pawls are of tool steel, the other working parts of pressed steel, and the cap and casing of malleable cast iron. The base is of solid iron integral with the jack, which has a lifting strength of 3000 lb. The jack is made in two sizes, 8½ in. high with a 5½ in. lift; 10⅛ in. high with a 7 in. lift. Price $6.—Coe-Stapley Mfg. Corp., New York.

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Show Reveals Eight New Cars

1—Overland
2—Olympian
3—Owen
4—Scripps-Booth
5—Templar
6—Crow-Elkhart
7—Anderson
8—Moore

New models are not so many as in other years and those that are new show the refining hand of the designer directed toward greater economy, better appearance and more comfort

First Glimpse of the New Overland Four

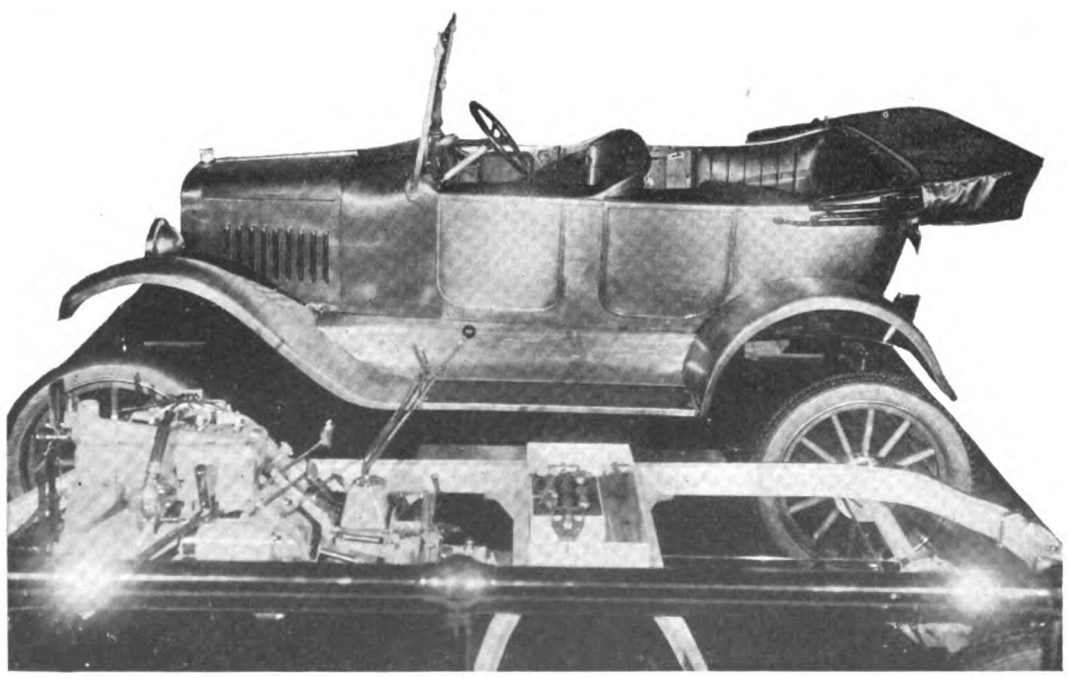
THE Willys-Overland big production, low-priced four, which was shown for the first time three months ago at the Toledo factory in chassis form to a few inside observers, has been submitted to the eye of the public at the show. The complete car is not on exhibition but the chassis and an unfinished body suffice to give not only a clear idea of the construction of the new product but also of its complete appearance.

Its predominating feature from a construction standpoint is the skillful use of pressed steel in both chassis and body. Everything possible is made as a pressed part, giving the desired lightness and low cost. Another feature is the extension of the chassis suspension forward of the front axle and behind the rear axle by the means of an overhanging form of spring arrangement.

A Really Big Little Car

The result is that the Willys-Overland company has produced a 1500-lb. car on a wheelbase of 100 in., with the equivalent of 130 in. in spring suspension. The frame side members are long pressed steel parts, spaced quite closely together, the distance from the inside of the channel side on one side to the inside of the opposite channel being 23 in. The depth of the channel member is 3½ in. and the width across from the outside of the channel flange on one side to the outside of the channel flange on the other is 26 in. These side members are rounded off front and rear, so that the form of the chassis frame is what might be roughly called a flat sided, narrow, continuous ellipse, the ellipse itself being 130 in. from end to end.

As the wheelbase is 100 in. the front and rear axles are both 15 in. in from the ends of the frame, this amount being represented by the overhang of the chassis. The springs are mounted in such a way as to connect the overhanging ends of the frame to the axle, this being accomplished by a horizontal V type of suspension at both front and rear. The

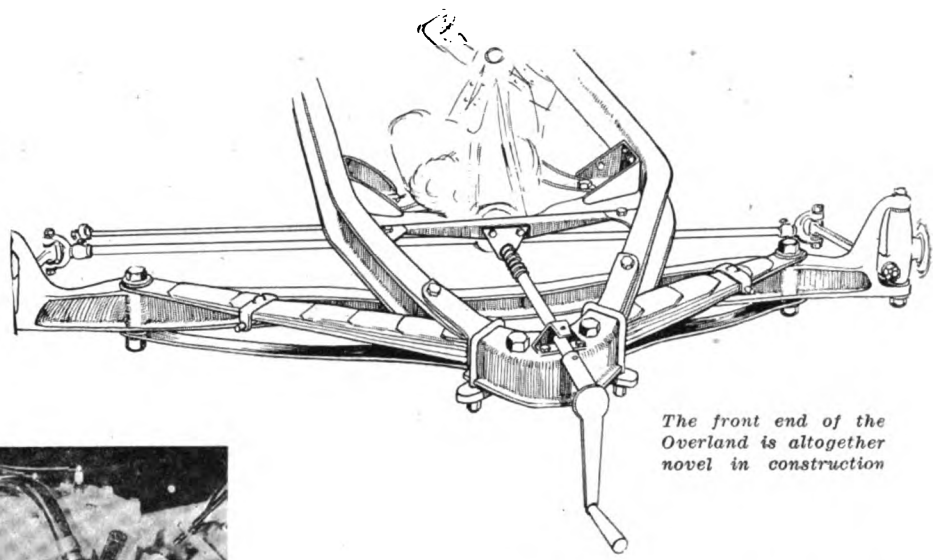


The new Overland Four has a sightly body built entirely of pressed steel for lightness and durability. Though the wheelbase is only 100 in. there is plenty of room due to the overhang of the body and the short hood

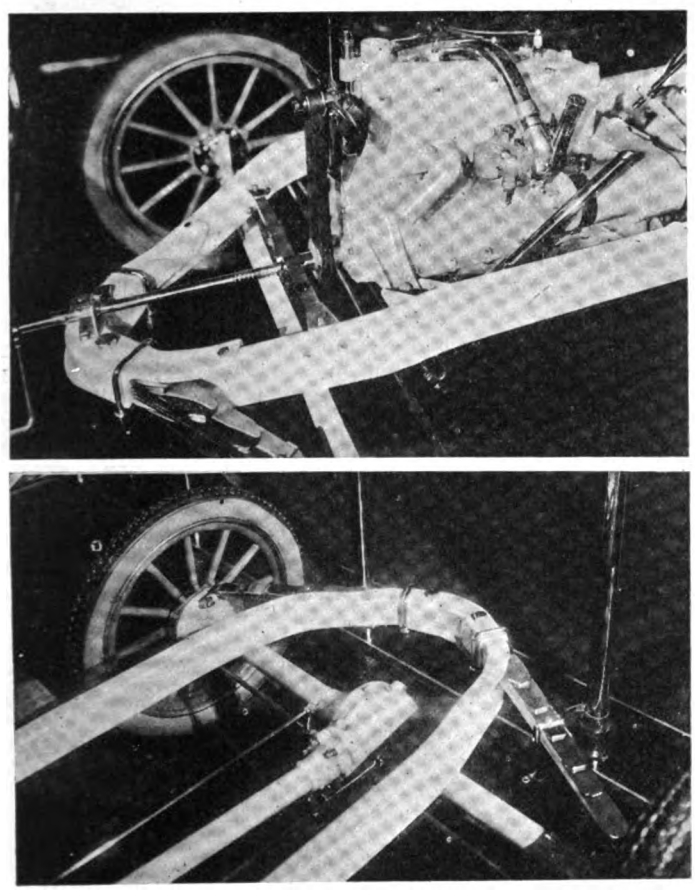
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front springs being fixed at both the frame and axle and the rear springs being shackled on one side and pivoted on the other to take care of the movement of the body, the front axle member is thus relied upon to absorb directly the spring stresses by slight movements of the front axle from the vertical.

Outside of the radical departure from usual practice in the arrangement of the frame members and suspension, the car does not depart from standard design in its other features. A conventional type of block L-head four-cylinder engine is used with dimensions of 3¼ x 4 in. The valves are operated from a gear-driven camshaft through mushroom push rods. Cooling is by thermo syphon and oiling by a pressure-feed system, in which the oil is thrown by centrifugal force by the flywheel through an oil strainer and then to a lead to the hollow crankshaft. The hollow shaft also takes care of the lower connecting rod bearings.



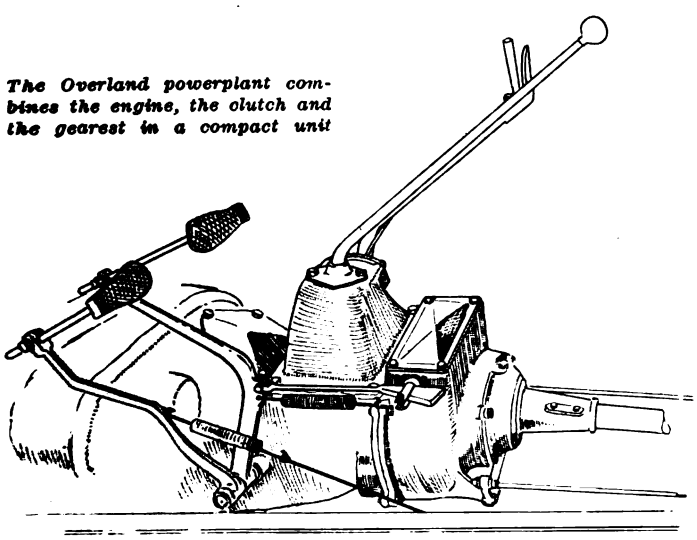
The front end of the Overland is altogether novel in construction



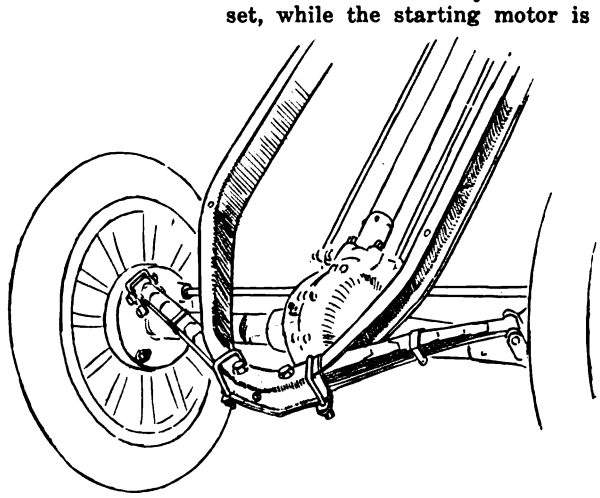
Here are the two ends of the Overland chassis showing how the springs have been arranged. The great amount of room on the short wheelbase chassis is made plain by these views

The castings for the engine are arranged in accordance with up-to-date practice in L-head design. The cylinder head is removable and the cylinders are cast in unit with the upper half of the crankcase. This casting also carries the motor supporting feet at all four corners, giving a four-point rigid suspension. The waterjackets are large and in connection with a cellular tube radiator with a large tank at the top the cooling system holds a total of 7 gal., which is much larger than that employed in some cars of greater size. In connection with this radiator there is a fan driven by belt from a gear on the end of the crankshaft, and the tension on this belt is constantly maintained by a spring.

The complete electrical system includes Auto-Lite units for starting and lighting, and the battery equipment may be either U. S. L., Gould or Willard. The battery capacity is 60-ampere-hour. The motor and generator are mounted separately, the generator being on the right side and driven directly from the timing set, while the starting motor is on the



The Overland powerplant combines the engine, the clutch and the gearset in a compact unit



The rear of the Overland, too, exhibits some quite radical ideas in designing

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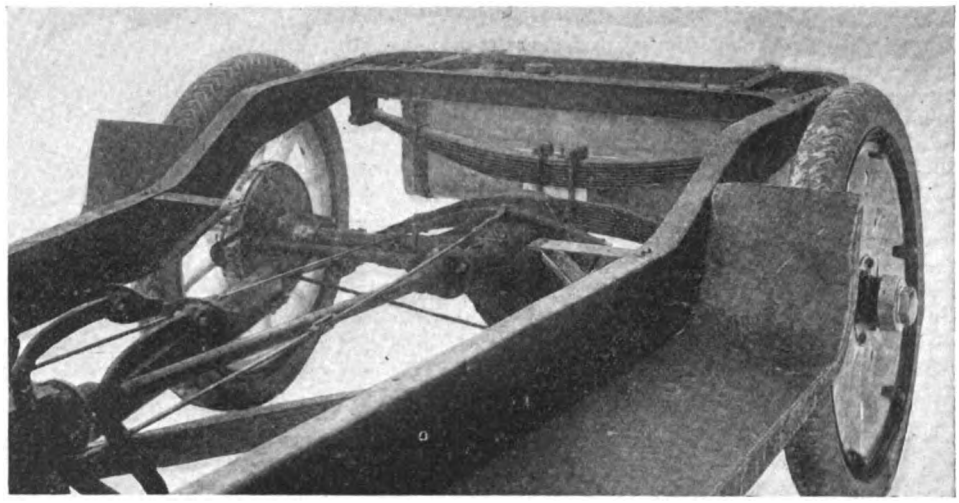
left side and is engaged with the flywheel by means of the Bendix gear.

The clutch and gearbox are mounted in connection with the engine as a unit powerplant. The clutch is an oil disk type, having three disks faced with Raybestos. It is housed within the flywheel and secures its oil from the supply which goes to the engine. In fact, the same oil lubricates the entire unit plant, flowing back also to the gearbox, which is a three-speed, sliding, selective type. From the gearbox the drive passes through one universal joint to the propeller shaft and thence to the three-quarter floating rear axle. This axle is in reality a single bearing floating type with a ball-bearing pressed over the outside of the axle housing, carrying the wheel, and a roller bearing at the differential end. The wheels are wood, carrying 30 x 3½ tires, non-skid in rear.

Two sets of brakes are used, the foot brake being mounted on the jackshaft of the gearbox, giving what is commonly known as a transmission brake, with the hand brake on at the rear wheels. The control members for operating the brakes and controlling the other functions of the car are placed in the customary manner.

Pressed Steel Body

The body is a production job as well as the chassis, being pressed steel throughout. The type shown is a five-passenger job and arranged with an apron-like projection in the front and a rounded off rear to accommodate itself to the overhanging frame suspension. The runningboards are supported from the chassis by two pressed steel U bars inverted to rivet to the frames, giving a substantial support to these boards. The color of the body is not fixed and there are some other details which are also to be settled upon before the car is put into production. For instance, the gear ratio on the model shown is 4, 73:1; this may be altered. It is expected that a definite move towards production will be made during the coming spring.



The spring suspension in the new Olympian is unique: the frame is the well-known Brush design

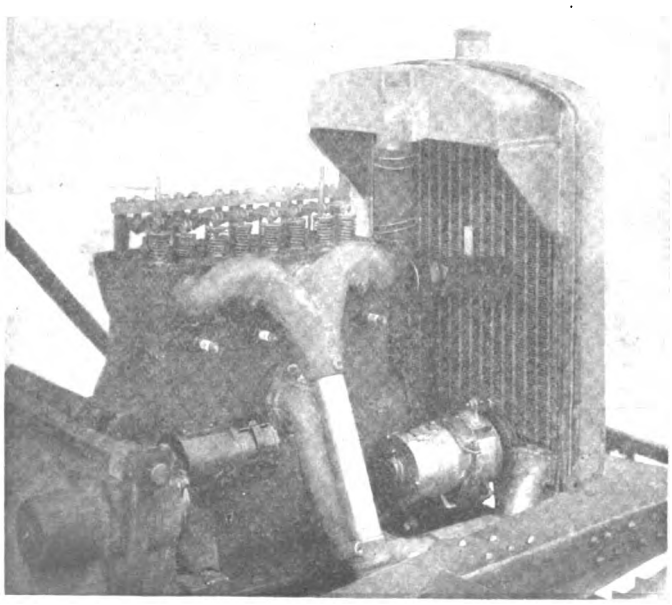
Overhead Valve Engine Features New Olympian

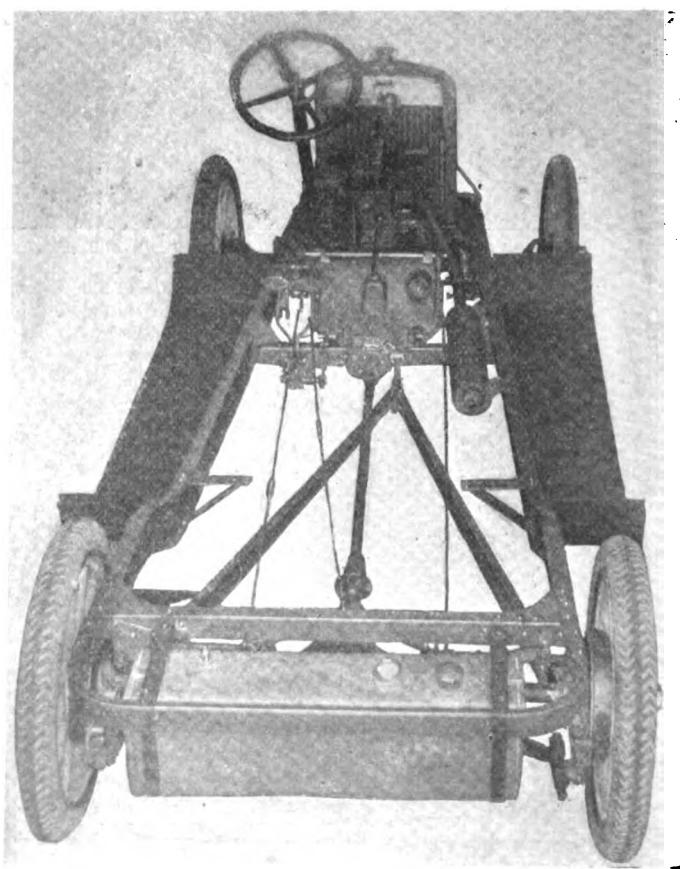
THE Olympian Motor Car Co., Pontiac, is exhibiting a new design throughout, and incorporates the features which have been associated with the Brush engineers such as the valve-in-head engine, deep frame construction in which the side members are formed by the splash apron, and the runningboards are also part of the frame structure, the full circle housing on the rear axle and the related features which go with this type of construction.

In addition to these features the drive units have been made stiffer by a triangular layout composed of two torque arms coming together at their forward ends so that an equilateral triangle is formed by the two torque members and rear axle.

Mounted on a wheelbase of 112 in. the body is typical of up-to-date expression in economy of space. The cowl is so arranged that it takes up but little room and the gearshift lever is brought out from beneath the cowl with a bend which carries it directly to the hand of the operator. In place of the ordinary type of hand-brake there is a handle which operates on a pull rod through the dash so that the manipulation of the hand-brake is rendered exceptionally easy and accessible. A clear aisle is left across

The Olympian engine and the chassis are both very clean designs which have been developed for maximum efficiency and minimum weight





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the width of the front seat by this arrangement of levers, so that in spite of the reasonable length of wheelbase there is more than a normal amount of room both front and rear.

The powerplant includes a four-cylinder engine, Borg & Beck clutch and a three-speed ball-bearing gearset mounted as a unit. The engine is a 3¼ x 4½ block four with detachable head carrying the Brush overhead valve gear, which is so designed that adjustments on the valve clearance can be made while the engine is running. An improvement has been incorporated in the valve action by using a full generated rocker pivot which adds to the life of the pivot point, and at the same time minimizes rocker friction.

Lynite aluminum alloy pistons are used and also a counterbalanced crankshaft fitted with counterweights, which are brought as closely as possible to the plane of rotation. The crankshaft has two main bearings and the diameter of the shaft at the front bearing is 1¾ in.; at the rear bearing the diameter is 2¼ in. The lengths of these two bearings are respectively 2.44 and 3 in.

Helical gears of 1¼ in. face width and 10 pitch are employed to drive the camshaft. The push rods are accessible for adjustment by the removal of detachable covers, which completely enclose the mechanism and aid in the retention of oil. The valves have a head diameter of 1¾ in. and a lift of .1875 in. on the cam, and this amounts to a lift of .375 or ⅜ in. on the valve due to the multiplication by means of the locker arm. The valves are operated by means of 35-lb. springs with an auxiliary spring having an additional load of 25 lb., giving a total of 60 lb. in valve spring action. The camshaft has a body diameter of 1⅛ in. and is carried on three bearings having respectively diameters in lengths of 2⅛ by 1¼, 1¾ by ⅞ and 1 in. by 2⅛ from front to rear.

The engine has been particularly designed from an upkeep standpoint, the removable valve-in-head action rendering the combustion chamber and valve systems readily accessible. The main and camshaft bearings can be reached by dropping the cam at the bottom, and it is possible to affect all necessary adjustments by these two methods without removing the engine from the chassis or tearing it down completely.

Lubrication is by pressure circulation with a gear pump, the oil being forced through the crankshaft to all the bearings. The oil flow is automatically regulated by the throttle through an interconnected link which works in conjunction with either the accelerator pedal or the hand throttle. There is a bypass controlled by a spring relief which holds the pressure to a predetermined amount. Carburetion is by means of a Stromberg instrument and ignition, lighting and starting is provided by separate Remy electric units. Cooling is by thermo-syphon and of a 4-gal. tubular radiator aided by a fan which is belt-driven from the front end of the crankshaft.

The 100-lb. flywheel carries an 8-in. diameter Borg & Beck dry plate clutch. The flywheel itself has an exterior diameter of 14 in. From this unit the drive is transmitted through a three-speed gearset unit mounted on S. K. F. ball-bearings on the main shaft and plain bearings on the countershaft. Both these shafts are 3½ per cent nickel steel. For final drive the gear rated at the rear axle is 4¾ to 1.

The propeller shaft has two universals and is relieved of torsional stresses by two pressed steel torque arms previously described. The rear axle is a three-quarter floating mounted on Hyatt bearings with a circular type of differential housing, to which the tubular shaft housings are bolted on either side.

The chassis frame is alloy steel having a depth of 6 in. and a horizontal width at the top flange of 2 in. The thickness of the side member is .109 in. and the runningboard, which is pressed steel, is a part of the frame construction. Springs are semi-elliptic front and transverse type rear, with the master leaf vanadium steel and the other leaves of high carbon steel. The length of the rear spring is 40¼ in. and of the front 32½ in., the rear having eight leaves and the front having six. The length of the upper rear spring is 40¼ in. and of the lower rear spring 44¼ in. The width of the rear springs are 2 in., and there are eight leaves in the upper half and nine in the lower. The front spring has a length of 32½ in. and width of 1¾ in. and employs six leaves.

The wheels are wood, artillery type, with 32 x 3½ in. tires. The make of the tire is the Miller straight-side with non-skids used in the rear. One of the features of the chassis construction is the method of bringing the side members of the frame continuously around at the rear to form a bumper, which serves as a support for the gasoline tank and also markedly increases the rigidity of the construction.

The body is a five-passenger double cowl steamline type with slanting windshield. It is built in the Olympian shops and follows the somewhat angular line now in wide use. It is equipped with an electric light in the rear right-hand door for lighting the tonneau and entrance. There is also a two-passenger design of individual lines. The equipment includes a Boyce Moto-Meter, Stewart-Warner speedometer, bumper and a complete set of tools. The price is $1,085.

Owen-Magnetic Has a New Engine

A NEW Owen-Magnetic which has been considerably revised and refined as compared with the last model is on exhibition. In body work it is probably one of the most distinctive types and carries out to a marked degree the tendency toward the beveled edge. The hood lines are beveled, as are the side rails of the body, and this beveled effect is carried around to the rear end so that it finishes off in the same angular style as characterizes the rest of the car. The price of the car with this new body is increased $1,000 over the former price, being now $5,475 as a touring car and $6,500 as a limousine. These prices are delivered in New York and include the war tax.

Mechanically the most important development is in the use of a new overhead valve engine. There is also a better control, which more uniformly graduates the intermediate steps in speed control. The new control apparatus also permits of a better braking action by allowing the current of the motor, acting as a generator, to increase the field strength of the electrical driving unit, thereby giving an increased drag on the armature for more severe braking.

The new car is now 6 in. longer in wheelbase, being 142 in. as compared with 136 last year. This is made necessary by the rearranged body and larger engine. The new engine is a 4 x 5½ overhead valve six, with the cylinders cast in two blocks of three, the overhead valve construction being carried on a single detachable head which fits both cylinder blocks. The engine is capable of delivering 80 hp. on the brake, according to the claims of the makers, and is manufactured specially for the Owen-Magnetic cars in the R. & L. shop.

Both the upper and lower halves of the crankcase are aluminum castings. The upper half of the crankcase is a ribbed structure stiffened to support the main bearing and to carry the crankshaft load. The latter not only must perform the usual duties but must also support the revolving member of the magnetic clutch forming a part of the transmission which acts in place of the conventional flywheel. The pistons are ground and lapped into the cylinder and drive through drop-forged, oval-section connecting rods.

The camshaft and the water pump and magneto shaft are driven from the crankshaft by means of a timing set composed of three helical gears inclosed by the aluminum cover. The valves are tungsten steel 1⅞ in. in diameter, and are used in connection with the overhead system carried in the detachable cylinder head. They are operated by drop forged rocker arms and push rods entirely inclosed by cover plates. These rods can be adjusted by removing the single aluminum top cover running the full length of the detachable head.

The exhaust from the engine is led in the manifold to the forward end of the engine and the exhaust pipe curves down from that point below the body, thus keeping the heat away from the front compartment. The intake and exhaust manifolds are both on the left side and the intake passages are arranged so that the single connection to the carbureter is cast integrally with the exhaust manifold and passes through it. This gives a highly preheated mixture and aids in the vaporization of the fuel.

Gasoline is fed by means of the Stewart vacuum system and ignition is by

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a Bosch high tension magneto. Lubrication is by pressure feed, with the gear pump supplying the lubricant under a head of from 20 to 30 lb. at normal running. The pressure is proportional to the power requirement and the oil under pressure is taken directly to the camshaft rocker arm bearings and timing gears besides the bearings directly concerned with the operation of the crankshaft. Cooling is by centrifugal pump, the pump being on the same shaft as the magneto. A syphon thermostat is located at the upper tank of the radiator, checking the flow of the cooling water by means of a bypass until the proper running temperature has been reached.

There is no alteration in the electrical system other than in the control unit mentioned. The chassis frame has been strengthened to support the longer wheelbase and is now 8 in. deep, of pressed steel channel section provided with many stiffening cross members and gussets. Although the wheelbase is 142 in. the turning radius is but 24 ft. The rear springs are now 61 in. long and are underslung. The standard rim equipment is Firestone straight sides and the tires are 35 by 5 in. cord with ribbed front and non-skid rear.

Scripps-Booth Reveals Five-Passenger Six

FOR the first time the Scripps-Booth appears in six-cylinder, five-passenger form. The familiar body lines which have created a name for distinctiveness remain, although they are modified to accommodate them to the new touring model. The new Scripps design is due without doubt to the definite inauguration of this concern as a part of the General Motors Co., and General Motors units displace the parts which were formerly purchased elsewhere. This is particularly true of the engine, which is now the Northway overhead valve six.

The new car, which is sold as a five-passenger for $1,195, is mounted on a wheelbase of 112 in. It is equipped with a 2 13/16 x 4¾ unit powerplant, having its six-cylinders cast in block with the valves operated from a single camshaft which actuates a set of exterior side rods and then an overhead rocker arm valve set. The cylinder heads are detachable and are held in place by long studs, and there is in addition a cover-plate which incloses the valve action.

The intake manifold has a hot plate to aid in the evaporation of the mixture. The manifolds are at the right side and the exhaust from the two central cylinders is directly against the portion of the manifold around which the intake gases are led. The carbureter is a Marvel and is provided with a full hot air intake so that both the air entering the carbureter and the mixture entering the cylinders are subjected to the high exhaust temperatures before entering the combustion chamber.

Pump cooling is used, the water pump being driven off the fan belt, as both the fan and pump are on the same shaft. The belt is a notched type to give positive drive. The fan is what is known as the biplane type, being a three-blade unit, with each blade having two parts parallel to each other. Starting, lighting and ignition is Remy, and the fuel feed is by means of a Stewart vacuum tank in connection with a rear gasoline tank.

Power is transmitted through a leather-faced clutch having an aluminum cone with spring insert. The gearbox is a Warner Munsey type, with ball-bearings on the main shaft and plain bearings on the lay shaft. The propeller shaft has two universals and the drive is by the Hotchkiss system in connection with semi-elliptic springs. In addition to the equipment mentioned the list price includes Marshall upholstery springs and a Stewart speedometer.

Unusual Overhead Valve Design in New Templar

A NEW car with a new design of overhead valve engine is being exhibited by the Templar Motors Corp., Cleveland. The car is an assembled product with the exception of the engine, which has been designed in the Templar shops and will be built by the company itself. The engine is a four-cylinder product of 197 cu. in. piston displacement and is claimed to develop 43 hp. at 2200 r.p.m.

The power plant is a detachable head unit with 3⅜ x 5½ in. cylinder dimensions. The valve action is a rocker arm type with the rockers covered by an aluminum housing. The vertical push rods operate in a hollow space, which is so arranged that there is a continuous oil vapor from the crankcase surrounding the valve action and keeping the parts lubricated. The valve rocker shaft is part of the pressure oil feed system.

The cylinder block is an iron casting and the crankshaft is aluminum. The pistons are cast iron and each carries four Wasson rings. The crankshaft has three main bearings and carries integral counterweights. The drive for the camshaft is taken off the crankshaft by silent chain. This chain also operates the generator shaft and the drive for the gear oil pump is taken off the camshaft.

Pump water circulation, Zenith carbureter in conjunction with a Copley primer and Remy electric equipment compose the auxiliary units. Fuel is supplied by the Stewart vacuum system from an 18-gallon supply tank with a two-gallon reserve.

The clutch is a Borg & Beck single dry plate with multiplying levers and ball bearing release. The drive is taken through a three-speed gear box operating on New Departure ball bearings to a hollow propeller shaft with two Schwitzer universals and a semi-floating American Ball-Bearing Co. rear axle. The springs are semi-elliptic front and rear, the length being 54 in. in the rear and the bushings are Nigrum oilless type. The tires are 32 x 4 Goodyear Cord, straight side. The five-passenger and the four-passenger are $1,985, the Victoria four-passenger $2,155, and the two-passenger touring-roadster $2,255.

Crow-Elkhart, Too, Has Overhead Valve Engine

CROW-ELKHART has a revised car employing the new valve-in-head engine, which is being built by the Crow-Elkhart company itself. The engine is a rocker arm type, four-cylinder, 3½ x 5, with a counterbalanced crankshaft having the counterweights electrically welded into place. The new car contains several changes in practice as compared with previous Crow-Elkharts. In the former L-head engine a two-bearing crankshaft was used, whereas in the new type there is an additional bearing.

Oiling is now by splash pressure, cooling by thermo syphon, and in place of the three-quarter elliptic springs, semi-elliptics are employed with a frame extension to take the place of the quarter which has been removed. Another big change is the abandonment of the rear axle gearbox and the substitution of the unit powerplant. In place of the clutch formerly made by the Crow-Elkhart company the Borg & Beck dry disc type is being used, and in place of a cowl gasoline tank the tank has been moved to the rear and Stewart vacuum feed employed. Other detail changes have also been put into effect, such as a sloping windshield in place of the vertical, a curved cowl, lower seats in the front compartment and twelve varieties of color offered as stock. The five-passenger touring car sells for $935, the De Luxe touring at $995, De Luxe Roadster $995, Coupe $1,295, and Sedan $1,395. For $100 extra a complete set of Houk wire wheels is supplied. The upholstery is either in Spanish brown or black long grain leatherette.

Larger Anderson Sport Convertible Model Shown

THE Anderson Motor Co., Rock Hill, S. C., has a new convertible sport model which may be transformed from a roadster to a five-passenger model. The rear compartment can be closed over, thus forming a rear-deck roadster, or when it is opened it uncovers a rear compartment which allows of three additional passengers. This convertible model comes in two styles, one with divided front seats and the other with a solid front seat and entrance to the rear compartment through a door at the rear or to the right side of the car. The convertible feature of the car is patented by the Anderson company.

The convertible model with the rear door is a larger type than the one with the divided front seat and is known as the De Luxe. The engine is larger in this model, being the new Continental 9 N, 3½ x 5¼ in. six-cylinder type. The other features of the car are similar to the standard Anderson product. The clutch is a Borg & Beck, the transmission is a three-speed selective, and the rear axle a Columbia.

One of the interesting features of the De Luxe convertible is the method of top adjustment for the roadster. There are

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two pillars which are concealed in the body just behind the front compartment and a curtain top which pulls over the front compartment on a spring roller. The De Luxe Convertible sells for $1,925; the convertible sport, $1,465; four-passenger, $1,465, and the sedan, $2,165.

Holmes Air-Cooled Car Shown to Public

AMERICA'S second air-cooled car, the new Holmes, about which there has been much speculation, quietly made its debut at a private exhibit this week. As was expected of the design of Robert Holmes, formerly vice-president of the Franklin company and for 7 years its chief engineer, the new car has a number of features which are the same in principle as those of the older one, but differ considerably in the method of their working out.

This is the product of the Holmes Automobile Co., Canton, Ohio, organized about a year ago. A production of 40,000 has been scheduled for the year with the first twenty cars coming through this month. The car appears as a seven-passenger touring and a sedan on the immediate program with a roadster to come through later. The price has not been fixed definitely but is between $2,000 and $2,500.

The method of cooling which has characterized Franklin practice, that is by means of a draft of air induced by a suction fan and led around vertically finned and separately cast cylinders is incorporated in the Holmes car, but instead of having the air jacket around individual cylinders the Holmes has its air jackets around all the cylinders. The construction of the cylinders themselves is similar to the older type, but the Holmes has removable cylinder heads of dome shape carrying inclined valves which are operated by a patented mechanism designed to compensate more fully for elongation and contraction due to changes in temperature in the push rods. The valve mechanism consists of a connection between push rod and valve stem through two bell cranks and an adjustable linkage so arranged that even with the maximum elongation of the push rod there is less than .001 in. variation in the distance between tappet and valve stem.

The use of the dome-shaped cylinder head into which the valves are set at an angle permits exceptionally large valves, particularly, exhaust valves, and producing in addition to more power the more important factor with an air-cooled car, a cooler cylinder with minimum combustion chamber area. The removable head can be taken off by taking out four machine screws and one nut, which displaces the entire valve mechanism as a unit.

Details of the engine design aside from the valve mechanism and cooling arrangement include a six-cylinder individually cast engine 3½ x 4½ in. Lubrication is pressure feed throughout by gear pump with oil leads to each main bearing. The crankshaft is drilled carrying the oil to the connecting rod bearing and oil is sprayed from these for piston lubrication so that the engine base is dropped.

The Sirroco type of induction fan, which is incorporated with the flywheel, draws the air through the louvres in the front and thence through an air jacket around all the cylinders instead of through individual jackets. This permits less space between cylinders, making a more compact engine with shorter crankshaft. The fan capacity is 2200 cu. ft. at 100 r.p.m.

Aside from the cylinder construction the car follows conventional lines having the usual channel frame, but the suspension is by means of elliptic springs front and rear. The bodies are exceptionally distinctive and the coach work as a whole is unusually fine. The car lines are more nearly those of the water-cooled car having a rather high hood which slopes backward at the front somewhat like the Fageol radiator, although the hood is hinged at the dash as in Franklin practice. Air is admitted through the front to crescent-shaped louvres. The straight-line effect in a body is well carried out and a distinctive front fender is provided in the shape of a double curve.

In all other respects the car is conventional, some of the features of its equipment being a Newcomb carbureter, Eisemann magneto with governor controlled automatic advance and Dyneto single-unit starting and lighting system of the non-stallable type so installed that the starter chain may be tightened or loosened by merely revolving the starter and without affecting the alignment. Fuel is fed to a vacuum system from a 16-gal. rear tank. The multiple dry plate clutch and Brown-Lipe gearset are in unit with the engine and a Van speedometer and cord tires 34 x 4½ are included in the equipment. The lamps, like the rest of the body, are of special design and are distinctive in appearance. The wheelbase is 126 in.

Moore Touring Model $695

THE Moore Motor Vehicle Co., of Danville, Ill., has on exhibition a car on a 106-in. wheelbase, selling for $695. It is an assembled product with a Golden-Belknap & Swartz, four-cylinder, L-head engine, disc in oil clutch, Grant Lees three speed gearbox, Peru floating rear axle with Hotchkiss drive, and 30 by 3½ tires. The car is furnished in either black or brewster green. In equipment the Dyneto lighting and starting is furnished in connection with an 80 ampere Willard storage battery. Ignition is provided by Dixie magneto. The car is mounted on cantilever springs.

Barnes to Sell Out

DETROIT, Jan. 5—The Barnes Foundry & Mfg. Co., Detroit, a $2,000,000 corporation organized last July to manufacture cylinders, pistons and other gray iron castings, has decided not to go ahead with its building plans, and by a unanimous vote of its directors has determined to sell its real estate, which has increased largely in value.

War conditions and the uncertainty of business prospects in this particular line were responsible for the decision to dissolve the company at a time when plans were well under way for an extensive factory. This announcement is quite unusual from the fact that it seems certain that all the stockholders will receive all the money they have paid in, with interest. In fact, the checks for the last installment of the stock have been returned to the stockholders by the board of directors. It is anticipated that when the 34 acres of property owned by the company is disposed of, sufficient will be realized to repay to the stockholders all the money that has been invested with interest and probably a profit.

The company, whose property is located next to the Great Lakes shipbuilding plant, one of the few available factory sites on the Detroit River, has among its directors some of the most prominent men in the industry. It was organized last July by Claire L. Barnes, who has spent about 15 months perfecting its plans. Mr. Barnes has not made any plans for the future, but expects to have all of the company's affairs cleaned up very shortly.

Trenam Plant at Stevens Point

STEVENS POINT, WIS., Jan. 3—The Trenam Tractor Co., Milwaukee, Wis., organized several months ago with $400,000 capital to manufacture and market a farm and general purpose tractor designed by J. J. Trenam, has decided to establish its permanent plant and headquarters in Stevens Point, Wis. The company has purchased outright the entire plant and holdings of the Central City Iron Works, Stevens Point.

It is hoped to start a regular production of tractors by March 1. Five demonstrating machines already have been completed and subjected to exhaustive tests. The company will concentrate on one type, a 12-24 hp., serving as a power unit as well as a substitute for horse power. The officers of the company are: President and general manager, J. J. Trenam; vice-president, R. A. Cook; secretary and treasurer, F. M. Schuler; directors, G. A. Gullikson, Otto Lay and Dr. Conrad Tasche. Charles D. Lillie, formerly manager of the Chicago branch of the Seagrave Co., manufacturer of fire engines, Columbus, Ohio, has been engaged as sales and advertising manager.

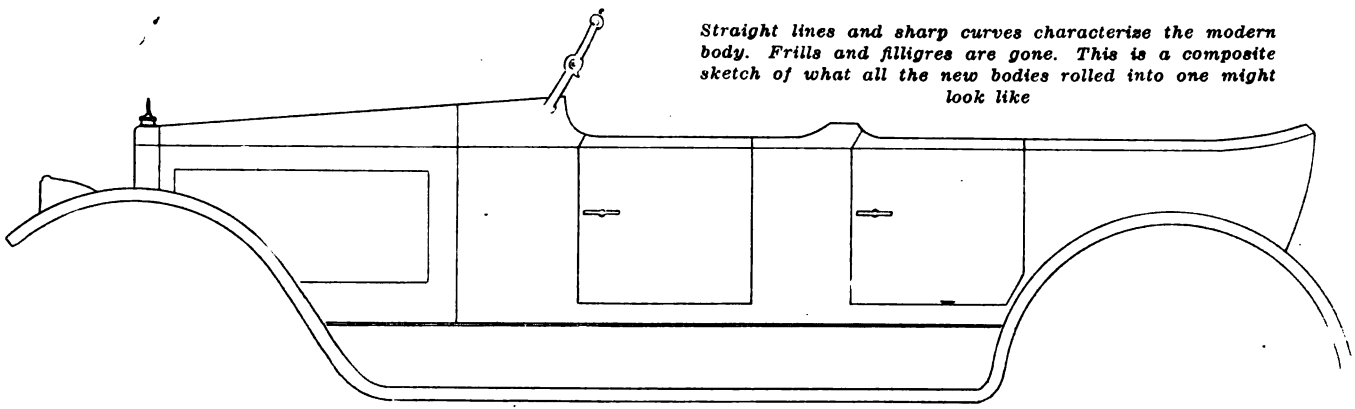
PORT HURON, MICH., Jan. 5—The Mueller Metals Co. has received a contract for $1,000,000 calling for the manufacture of gas shells for the French 75 millimeter guns. A new plant is rapidly being completed.

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Straight Lines Displace Curves

In Modern Body Design

The Show Reveals an Increasing Uniformity in the Use of Good Ideas—Beveled Edges Replacing Round Ones



Straight lines and sharp curves characterize the modern body. Frills and filligres are gone. This is a composite sketch of what all the new bodies rolled into one might look like

TWO features stand out prominently in connection with the body designs which have been produced for the new year. One of these is the far greater uniformity which is apparent in the productions of different factories. The other is the very noticeable tendency toward the use of straighter lines and square corners. Curves are going fast.

Another dominating note which undoubtedly has brought about the increase in uniformity and which has served to accentuate the appearance of straight lines and square corners is the great increase in the number of "sport" bodies —that type of which the Hudson has been prominently among the forerunners.

Taken by and large, bodies are lower; they are slightly narrower; their side panels are lower; they are roomier; they should be more acceptable—or should we say desirable—to the prospect, and for this reason should be easier for the dealer to sell.

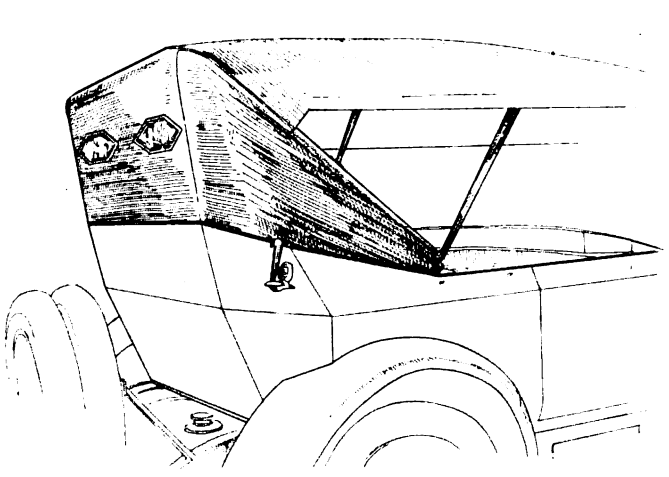
But of all these features, the one that stands out most prominently is the greater use of straight lines and square corners. And of the cars which show this movement away from curves to the greatest extent there are the new Owen-Magnetic and the Cole, though others show it only in a slightly lesser degree.

The Owen has the new beveled edge side panel carried to what is very nearly the limit. The length of the bevel is probably between 6 and 7 in., giving a sharply defined line below the top body line which is carried clear around the car. Even at the back the bevel idea is carried out, a feature which is far better made plain by the accompanying sketch than it could be by hundreds of printed words. All the other body lines, including those of the hood, are made to blend with this same straight line-bevel effect in a design which is as unusual and distinctive as it is new.

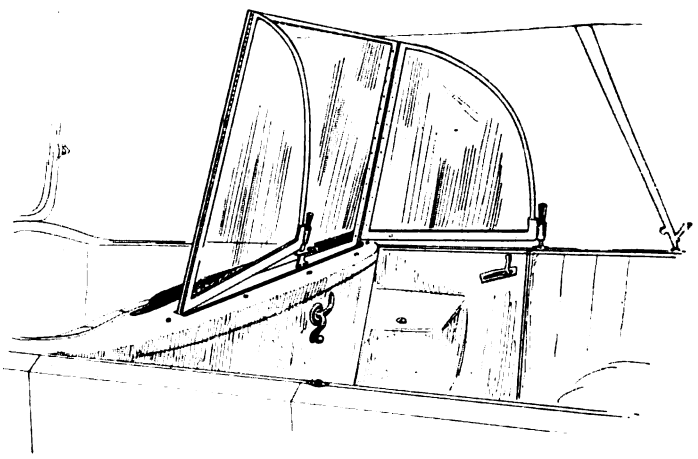
The Cole is not quite so severe in its adaptation of the straight line effect. Here the top body line ends very frankly in an abrupt angle with the back of the body, there being an equally sharp line where the body sides join the back. This sharpness is particularly pronounced in a close-coupled four-passenger model. Other makers, too, have given excellent examples of the use of straight lines and sharp angles, among them being the Winton, which for the first time has departed very considerably from what has been previously accepted as quite correct in body design; Case, National, Stearns, Velie, Marmon, McFarlan and the new Silver special models, two on Apperson chassis and the others on Kissels.

The use of straighter top body lines has one big advantage that not every one appears to have thought of. It makes the attachment of a winter top a much simpler job for there is considerably less fitting.

Coincident with the straighter lines has come a general lowering of the

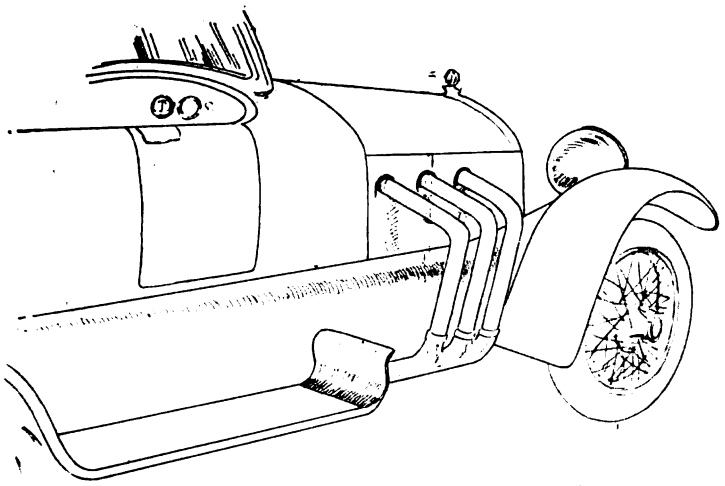


The new Owen has the straightest of straight lines and the sharpest of sharp corners

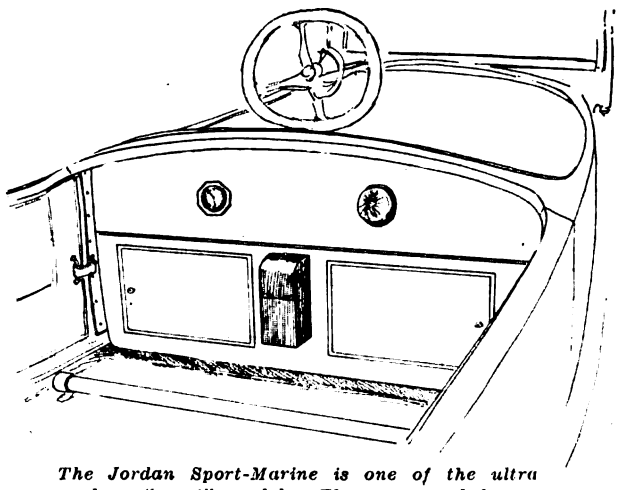


One of the Roamer models has an ingenious folding windshield which disappears in the body

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Velie has achieved an altogether striking and original sport body

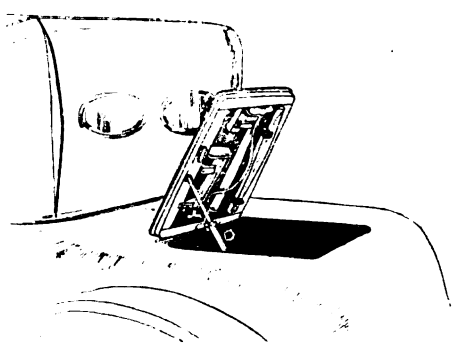


The Jordan Sport-Marine is one of the ultra modern "sport" models. The rear cowl has a clock, storage compartments and a kodak pocket

height of body panels, and this has had the effect of making the cars themselves appear lower; in fact, some of them are a little lower. McFarlan has a sport body which is perhaps the lowest of all those shown. In it the sides are scarcely high enough to hide the knees of the passengers, with the result that the car has a very racy, speedy appearance.

Another feature which has come with straighter lines is a narrowing of bodies. That is, the sides are flatter, and while actual measurements undoubtedly would reveal that overall dimensions are smaller, there really is more room in the bodies. Take the case of Saxon as one example. Here is a clever little convertible job in which the sides are perpendicular, and an end-on view gives an impression of narrowness altogether unusual. Yet the tonneau when opened for duty seats three on the rear seat, with two auxiliary seats. When the body is closed there is little to indicate that it is anything other than a conventional and good-looking two-passenger roadster.

A straightline hood, perhaps slightly higher at the dash than at the radiator, a sharp perpendicular break at the dash and a straight run back to the rear of the tonneau represents the modern sport body type. Frills and filigrees are gone. Strange as it may seem, however, and in spite of the lower body sides there has been a very general return to the use of external door handles. And far from marring the appearance, they really



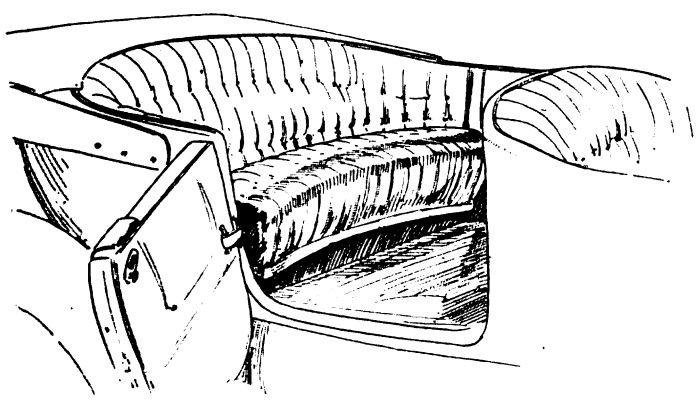
The tools are very cleverly stored in the new Scripps-Booth roadster

add that touch of finish which often has appeared lacking. Chandler has such a low, straight model in which handles are a feature, and nearly every other car of this type has them.

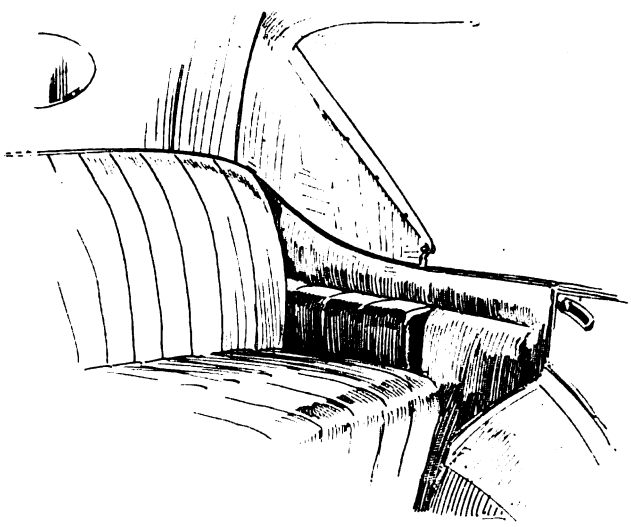
Among the altogether unusual body styles there might be mentioned the several Silver special models, some on Apperson chassis and others on Kissel chassis, and a very curvy boat model exhibited by Moon. The Silver specials, designed by and named for C. T. Silver, Metropolitan distributer of Apperson and Kissel, are beautiful examples of coach work. In outline the bodies are ultra-modern and in fittings they are all that the most fastidious could desire.

There is a Silver-Apperson special sport model for example. The radiator is entirely new, is oval and is lightly convex. The body has almost severely straight lines and, of course, there are the distinctive Silver bullet lamps, even to the tail lamp. Fittings are polished nickel throughout, including the instrument board, and the top has bows of natural wood. Front seats are individual, and there is a single wide door at both sides which gives access to both the front and the rear compartment. It is evident that the whole design has been built up of ideas culled from the best to be found on the highest class coach work, with several new ones thrown in for good measure. And as a finishing touch to one of the models the upholstery is finished in silver throughout.

The other Silver models are no less elaborate in fittings and finish if slightly less daring in the carrying out of the designer's ideas. These are modern ex-

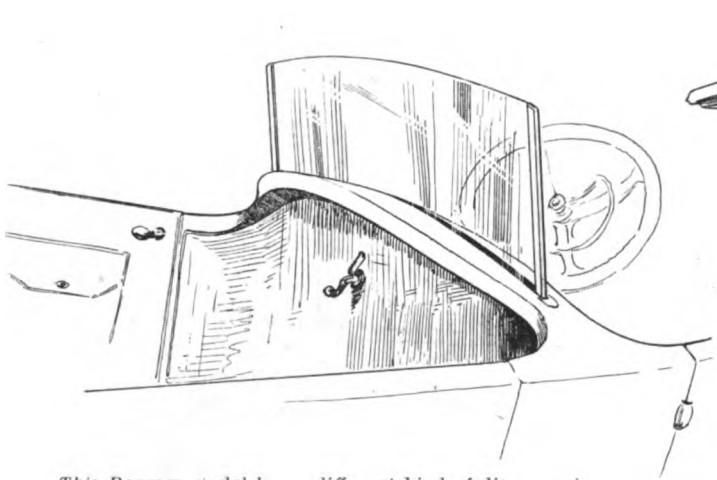


Departing from the straight line effect, Austin has a body which is nearly all curves

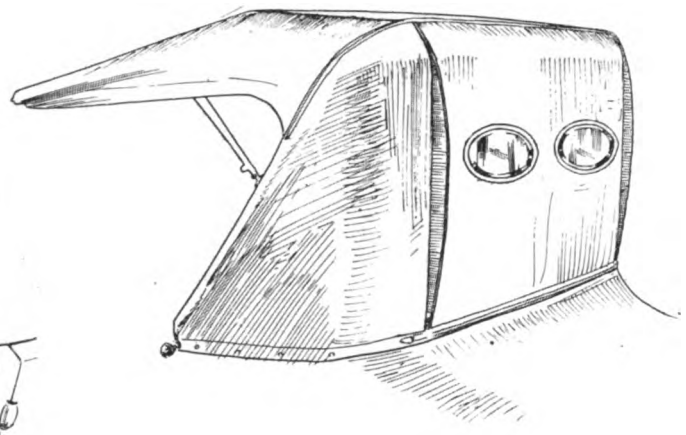


In the Kline there is a clever and altogether comfortable arm rest in the tonneau

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This Roamer model has a different kind of disappearing tonneau windshield. It is a one-piece design



The pleats at the back of the Scripps-Booth top are reminiscent of the old victoria days

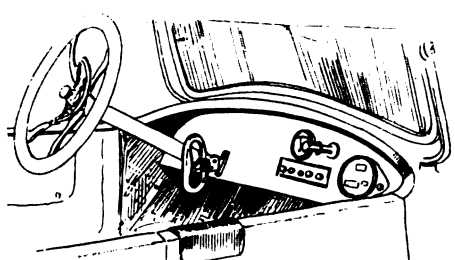
amples of the application of straight lines in a scientific manner.

The Moon boat model goes to the exact other extreme from the straight line creations. It might almost be said without fear of contradiction that there is not a straight line in the whole design.

One of the really noticeable features of the show which lends a martial air to the exhibits is the appearance of steel wheels and disk wheels. The steel wheels are the products of the Detroit Pressed Steel Co. and the disks are made by the Chas. Schutte Body Co., Lancaster, Pa. Three of the models which appear with steel wheels are the Oldsmobile, the Paige and the McFarlan. A new Anderson De Luxe Convertible appears with disked wheels, as do two Saxons with special bodies exhibited by the Schutte company. Wire wheels, of course, are more numerous than in previous years, there being some 95 models so equipped and only 121 with the usual wood wheels.

In the matter of color, exponents of bright finishes and dark finishes are very nearly evenly balanced. For example, among the total of 110 cars finished in dark colors, 62 are black, 17 dark green, 15 maroon, 9 dark blue, 4 dark red and 3 dark brown. There are 105 brightly finished cars as follows: Twenty are tan, 10 turquoise blue, 16 light green, 13 grey, 10 yellow, 10 red, 5 white, 3 light yellow, 1 Nile green, 1 purple, 1 orange and 1 red, white and blue.

For upholstery, dull black leather, or something which so closely resembles it that no one but an expert could tell the difference, is the most popular. Eighty-five cars are so upholstered. Of the others, 53 are finished in cloth of some sort, 24 have bright black leather, 10 have bright leather of some other color, 7 have velvet, 5 broadcloth, 2 brocade, 2 corduroy and 1 cretonne. Only four cars on exhibit are fitted with slip covers.

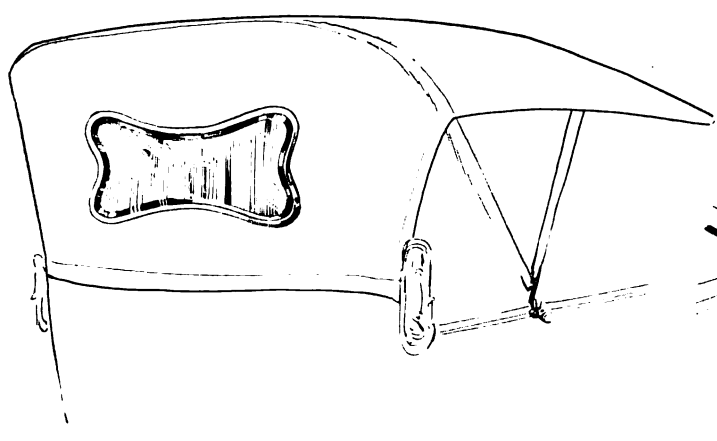


The Olympian emergency brake lever is mounted on the dash

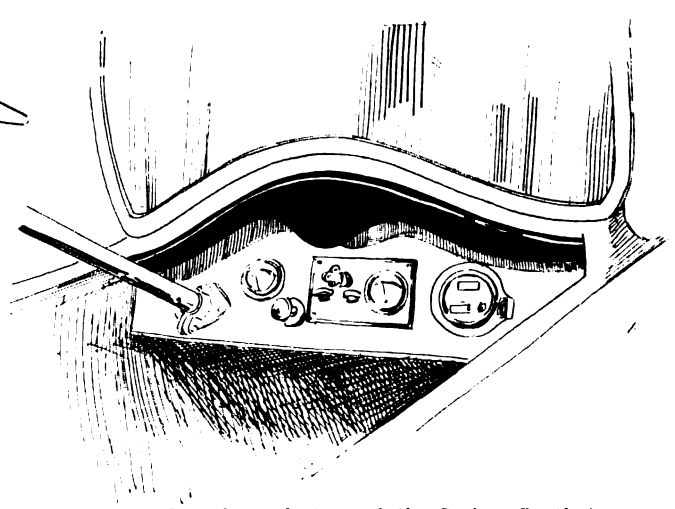
Inclosed cars as a whole do not evidence any great development of line as compared with recent years. There does seem to be some improvement in the fittings and finishing. Little things such as anti-rattlers for the glass work are more in evidence, and a certain step in the right direction, particularly in the class of cars in which all the glass work disappears, as a tendency to rattle has been one of the disadvantages of this type of construction. The only new lines in the inclosed bodies are in evidence on a Hupmobile sedan, in which the vertical edges at the rear have a decided bevel so that it gives a somewhat octagonal effect to the rear view of the car.

Pierce-Arrow has a well-designed coupe model in which there is a new type of tilting wheel, and the driver's seat is mounted on tracks and can be moved back out of the way to increase the entrance space.

The electrics, as usual, are given a prominent place, and though most of them, including Detroit, Milburn, Ohio and Baker-R & L, exhibit detail improvements, none exhibits such a radical departure from previous practice as does the Milburn. In appearance, this car is almost an exact duplicate of a high-priced gasoline limousine. In other words, there is the same straight line effect and the same pattern of hood and radiator, only in this case, of course, there is no radiator at all. Nearly all the battery is carried under a hood at the front, there being only a comparatively small amount at the rear in the usual location.



Johnston plate glass curtain windows are a feature of a great many cars. Chandler has one of the largest rear lights



Another clever feature of the Scripps-Booth is the arrangement of the cowl to hide the instrument board light

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How Design Has Been Improved to Give Greater Economy

Better Utilization of Low Grade Fuel, Engine Size and Wheelbase, with More Room in Driver's Compartment, Features of 1918 Cars

FROM a technical standpoint the lesson carried home to dealers by the show is that cars are more economical now than ever before. The influence of the war has had a marked effect on design, and where new construction has been brought out a strong leaning toward the economy features in arranging the specifications can be noticed.

Overhead valves, hot-spot intake manifolds, lightweight parts, pressure feed oiling, more economical use of engine size and wheelbase and a score of other features all tending to secure the greatest possible performance out of a given quantity of fuel oil or rubber will be the predominating features of 1918 cars.

Economy the Watchword

This influence of economy is not only noticeable in the various chassis components but is also of marked influence in the determination of body features. Weight has been cut from bodies and at the same time they have been made more rattle-proof and more comfortable. Furthermore, it has been possible through more scientific design to secure an increased amount of body space on a shorter wheelbase. This has been done by decreasing the length of the hood and cowl and in some cases by changing the cowl tank for one in the rear, using a vacuum feed in place of gravity.

There is no doubt that the heavier grades of gasoline have had the greatest influence on the design of the new cars at the show. Hardly a car is on the floor which has the same intake manifold as it had a year ago. The necessity for utilizing the intake as a medium for breaking up the fuel and also as an aid to quick warming has been realized to such an extent that exhaust or waterjacketed intakes are on every hand. The primary air entering the carbureter is still heated by the exhaust manifold stove as in former years, but in addition the mixing chamber and the passage between the mixing chamber and the combustion chamber are also warmed either by utilizing the exhaust heat, as in most instances, or in using the cooling water as is done by a few cars.

The overhead valve has been endorsed by an increased number of concerns this year. At the show concerns like Scripps-Booth, Owen Magnetic, Crow-Elkhart, Olympian and Templar are exhibiting new cars all of which are fitted with overhead valve engines. The advantageous combustion chamber space permitting the highest possible output from a given displacement has been one of the fundamental reasons for the adoption of this type. The old objection of noise has been overcome by inclosing the rocker arms and other parts of the valve-drive system.

On the Scripps-Booth the housing is bolted securely to the top of the engine and in addition to this there is a removable cover plate which can be quickly taken off by turning two thumb nuts.

Overhead Valves Increase

Gasoline economy is also claimed with the overhead type of valve action due to the fact that there is little loss of effect of area in the combustion space and consequently the greatest possible use is made of the heat available. This type is also more accessible in that the cylinder heads containing the valve action are removable.

There are two cars at the show this year which have given up the rear axle gearbox, one of them being the Crow-Elkhart, which is entirely new, having been first disclosed at the show, and the other is the Studebaker. The Studebaker has adopted the amidship gearbox, while the Crow-Elkhart is now fitted with a unit power plant, the engine being a new overhead valve which is to be made in the Crow-Elkhart shops.

Results

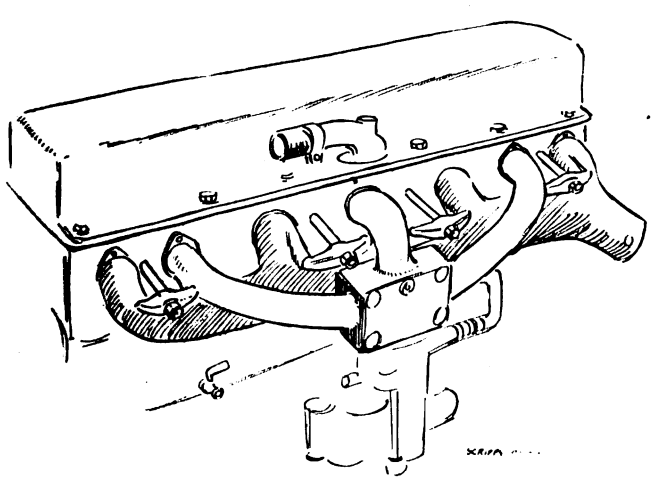
Economy of operation and maintenance is the keynote of the 1918 *car.*

Improved intake manifolds have practically solved the heavy fuel situation.

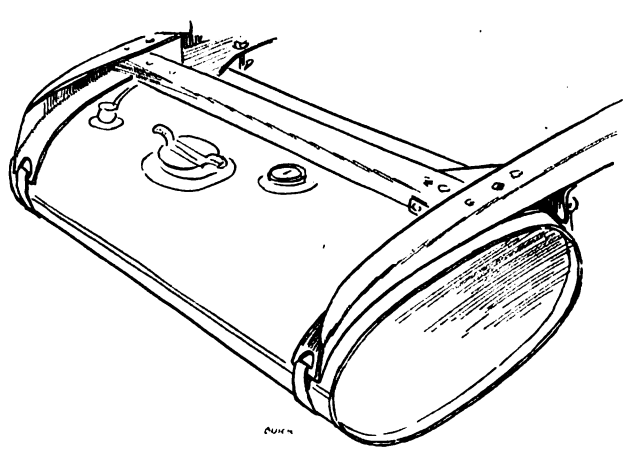
Overhead valve engines have increased because of high output for size.

Pressure feed oiling is used more than ever, giving longer bearing life.

Oil cups in place of grease cups give more positive winter lubrication.

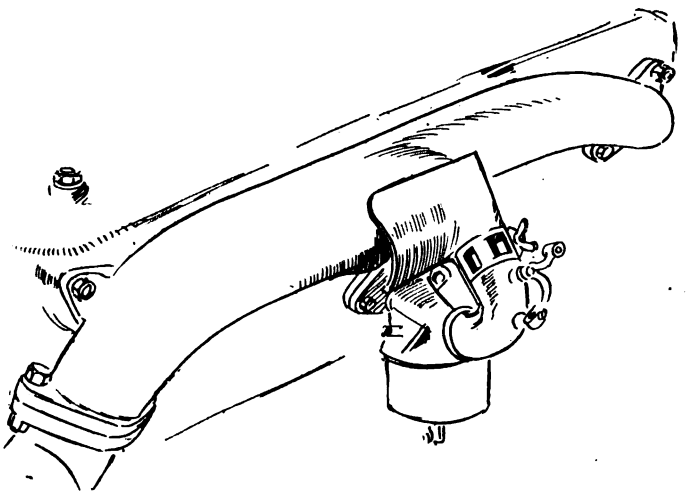


Scripps now uses the Northway overhead six

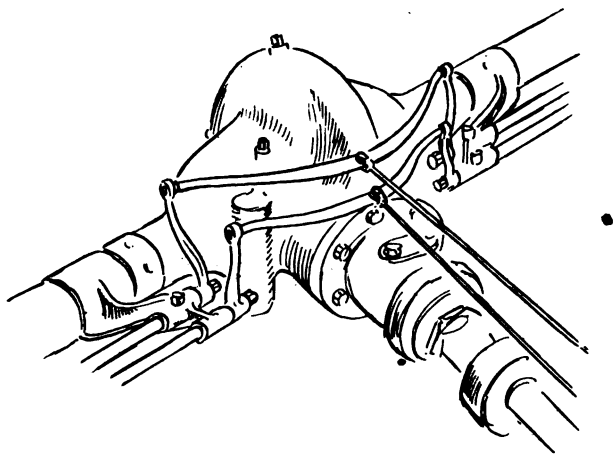


Buicks will not shed their tanks on the road

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Elcar uses exhaust heat with this new stove



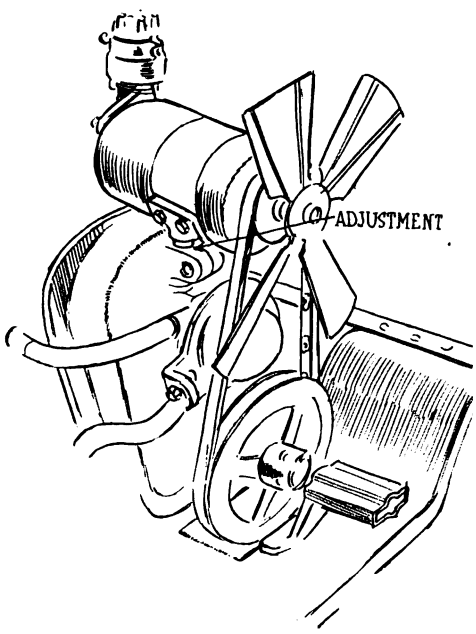
Simplified brake construction with double equalizers on Elcar

Hot spot intake manifolds are being made a strong talking point by some concerns which claim that due to the type which they have originated the damp gases are more thoroughly broken up and vaporized than with the more conventional types of manifold. The practice generally followed is to permit the intake gases to strike against an exposed part of the exhaust manifold which is subjected directly to the heat of perhaps two of the cylinders.

In a great many of the installations where the exhaust valves of the two central cylinders are close together at the middle of the block, the hot spot is quite close to this point. On the Winton a new intake manifold has been installed in which the water is led around the mixing chamber above the carbureter so that the temperature is not quite so high as with the exhaust heated manifolds.

More Pressure Feeds

Increasing engine speeds and increasing crankshaft diameters have combined to accelerate the trend toward pressure feed oiling. This year several makes of cars which formerly used pressure feed only to the main bearings and oiled the rest of the moving parts by splash, have now gone to a more complete pressure feed in connection with a hollow crankshaft. The shaft is drilled through the crank cheeks carrying the oil to the lower connecting-rod bearings which are lubricated to such an extent that there is an excessive supply which can be thrown off to take care of the other parts of the engine such as the camshaft, pistons, and piston pins.



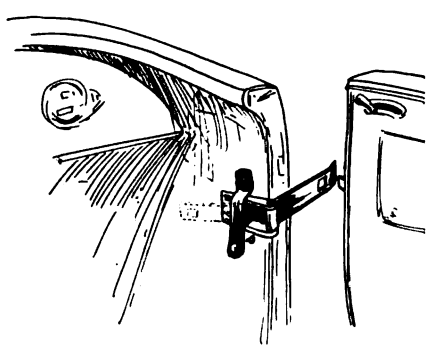
Fan and generator combined on Oldsmobile

A feature of overhead valve oiling which is new has been installed on the Templar engine. The space through which the vertical pushrods operate acts as an oil passage permitting the oily vapor from the crankcase to reach the rocker arm bearing points thus cutting down wear and promoting life at these points. On this same engine the rocker shaft is made part of the pressure feed system so that a complete system of valve mechanism lubrication has been worked out.

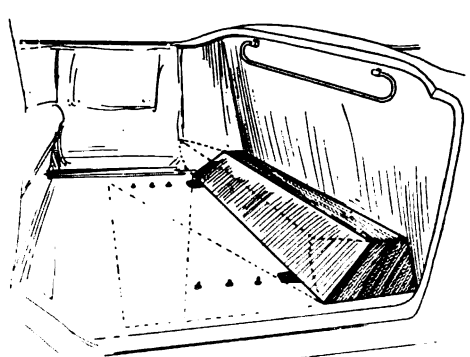
Better Spring Suspension

Improvements in spring suspension are more a matter of detail this year than of radical refinement. The semi-elliptic spring has increased in connection with the growth of Hotchkiss drive in which both the propulsion and torsional components of the rear axle are taken through the springs. On the Crow-Elkhart, for example, the three-quarter elliptic rear suspension has been supplanted by the semi-elliptic with an extended frame end which supplants the upper quarter of the spring. This same drive is familiar through its successful use on the Hudson car during the past few seasons.

In connection with the desire to keep the car as low as possible, a large proportion of rear springs are being underslung. This construction taken with a spring that is designed to be quite flat under load gives a low hung appearance to the body which permits of very attractive lines.



Open door policy on Studebaker secures ventilation



In the Kline footrest there is a receptacle for packages

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One of the most important features of the year's development as exemplified at the show is in the better layout of control members. Gearshift levers are higher and closer to hand and emergency brake levers are also improved in this respect. This not only makes the car easier to drive but it is also easier to enter and easier to leave. One of the best examples of re-design in connection with the front compartment is in the new Hupmobile model R where a 112-in. chassis is being fitted with a body which has an equal amount of room in the rear as the car had on a 119-in. chassis and 2 in. more room in the front compartment than on the former chassis in spite of the fact that it was 7 in. longer.

Economy in car design does not stop at efficiency in operation but is also related very closely to economy in upkeep and in reduced cost of maintenance. Some of the factors which are seen on every hand, and which deal particularly with this phase, are the substitution of oil cups for grease cups, the simplification of necessary drives, the combining of units such as the fan and water pump, fan and generator, generator and distributor head, etc. It is now possible to make easy adjustments on these units, and in some cases to even remove the fan and other front end parts without having to take off the radiator.

Another point which has been studied from the viewpoint of maintenance, is the adjustment and repair of engine parts. It is now possible on practically all cars to withdraw the pistons together with the connecting-rod assembly through the bottom of the crankcase by simply removing the bottom pan of the engine. This allows the piston to be pulled out past the crankshaft, which does not have to be disturbed in order to make the required repairs. This is a marked advantage because where it is necessary to take out the crankshaft the alignment of this unit is nearly always disturbed with the result that considerable work has to be done on the main bearings in addition to the work on the particular part which had to be repaired.

Economy of space, operation and maintenance are the great factors of the 1918 car. It is in these developments that practically every car on the market has improved itself and will answer the chief demands of buyers for this year.

Statistical Picture of the Show

	Garden and Palace 1913	Palace 1914	Palace 1915	Palace 1916	Palace 1917	Palace 1918
Total Exhibitors	424	349	317	391	323	331
Car Exhibitors	89	78	80	84	95	79
Accessory Exhibitors	320	259	223	306	227	252
Motorcycle Exhibitors	15	12	14	1	1	0
Grand Total (Cars and chassis together)						
Two-cylinder	0	2	0	0	0	0
Four-cylinder	202	162	126	116	120	82
Six-cylinder	112	116	134	135	143	155
Eight-cylinder	0	0	8	41	47	36
Twelve-cylinder	0	0	0	13	15	9
Steam	0	0	0	0	2	4
Electric	10	17	15	17	13	11
Total	324	297	283	322	340	297
GASOLINE CARS						
Touring	162	143	124	117	128	132
Roadster	49	50	48	75	67	40
Limousine	23	15	18	11	16	8
Berline	8	6	2	1	0	2
Coupe	19*	17	7	6	6	13
Phaeton	1	2	1	0	0	0
Landaulet	0	1	1	3	3	0
Raceabout	2	2	3	2	0	3
Sedan	2	2	3	2	0	43*
Town Car	0	0	4	5	12	11
Total	266	265	221	251	272	252
ELECTRIC CARS						
Coupe	7	2	1	11	8	9
Cabriolet	0	0	1	1	0	0
Roadster	3	1	3	1	1	0
Town Car	0	1	1	0	1	0
Limousine	0	0	1	0	0	1
Sedan	0	0	0	0	0	1
Total	10	4	7	13	10	11
CHASSIS						
Four-cylinder	27	21	20	19	26	12
Four-cylinder (sleeve valve)	0	0	0	3	0	0
Six-cylinder	21	15	26	19	18	16
Eight-cylinder	0	0	1	8	6	4
Eight-cylinder (sleeve valve)	0	0	0	1	2	0
Twelve-cylinder	0	0	0	4	1	0
Steam	0	0	0	0	0	2
Electric	1	1	4	2	1	0
Total	49	37	51	56	54	34

*Includes Convertibles.

1500 Farm Tractors for France

WASHINGTON, Jan. 3—Fifteen hundred farm tractors will be sent to France by the Food Administration. All will be over-seas for spring plowing in March. It is estimated that this increase in the French food supply, through greater efficiency, will release 2,000,000 tons of shipping in 1918 that otherwise would be needed to transport food. France in 1917 had 30,742,157 acres of crops, compared with 40,557,293 in 1913. The total food crop in 1917 was 24,581,290 tons, as compared with 30,462,340 tons in 1913. The tractors will enable the French to plant 500,000 additional acres of potatoes and an extra million acres of wheat.

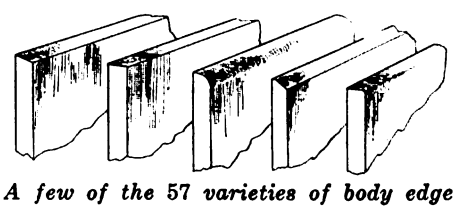
The plan for sending the tractors was conceived by Henry Morgenthau and his son, Henry Morgenthau, Jr., the latter of whom will supervise the delivery of the tractors in France and establish schools to train older men and women to use them. The French Government has accepted them and they will be distributed by the French Minister of Agriculture. The National Implement and Vehicle Association approved the plan and gave assurance that it would not interfere with American farm production.

Has Weekly Auction Sales of Cars

NEW WESTMINSTER, B. C., Jan. 4—Auction sales of automobiles are now being held weekly at the city market. Friday morning is the regular market day in the Royal City on the Fraser, and many farmers are taking advantage of the opportunity to secure a used car at their own price.

Baker Brings Out Three New Models

CLEVELAND, Jan. 4—The Baker R. & L. Co., manufacturer of the Rauch & Lang electric car, has brought out a new model chassis styled the W-42. It has a wheelbase of 142 in., with a radiator hood and new body design. The construction of the chassis is practically the same. Among the improvements is a more powerful motor. Three body styles are offered—the touring car, sedan, and limousine.



A few of the 57 varieties of body edge

50 Trucks Overland for New York

BUFFALO, Jan. 3—Fifty army trucks left Tuesday overland for New York. This is the largest convoy ever started out in this way. The convoy of trucks which recently went from Michigan to the seaboard numbered 30. The first truck is fitted with a snowplow and the engineers were fitted out with winter clothing by the Buffalo Red Cross. Captain J. D. K. Loach, Twentieth United States Engineers, is in charge of the trucks and the 92 men who operate them.

Coal Still Worries Detroit

DETROIT, Jan. 5—The coal situation still occupies the center of the stage, and receipts have dropped off in the past week. Last week something over 500 carloads were received, but this week only about 150 carloads arrived. Manufacturing plants are still running, with limited supplies, and relief is looked for through Government control of the railroads. Flint, Jackson and Lansing are possibly in even worse condition, and two Lansing factories will have to close this week if coal does not arrive.

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Editorial Observation

The Gospel of Unsound "Economy"

IT is to be regretted that some of those connected with our Government still cling to the mistaken idea that if we are to produce goods for the winning of the war we must curtail some of our most essential industries. One of the exponents of this negative policy oftenest quoted to-day is Frank A. Vanderlip of the National City Bank of New York. He is preaching a gospel of economy in order to promote the sale of war thrift stamps. He maintains such things as this:

That if a man's old hat will wear for 2 months longer he should not buy a new hat until the old hat is just about on its last legs. He maintains that we should not purchase what he calls luxuries. That we should devote our money to the service of the Government, despite the fact that all the war loans put forward by the Government have gone over in grand style.

He says the Government has $19,000,000,000 that it has not been able to spend because there have not been things to buy, and in the same breath he indicates that the Government needs more money.

He also says there must be a curtailment of industries in order that greater factory capacities may be made available, but he does not point out what these capacities would be used for. It is a matter of fact that certain capacities have been offered to the Government and the Government could not use them.

Mr. Vanderlip talks of releasing labor for war work, but he does not say what kind of labor is needed or where it is needed. As a matter of fact labor has been superfluous in some sections and the Government has not been able to use it. If there should be an unfilled need for capacity or labor and the expansion of industry could not meet it, then it would be time to talk of curtailment, but these policies of curtailment at this particular time are radically wrong and are unwise from an economic standpoint.

If the time comes when we must cease all other activities and concentrate upon war work then the great war is within 6 months of its finish and we shall either win it or lose it in 6 months. If we were sure we could win it by doing nothing except manufacturing munitions for 6 months, then that might be the thing to do, but if we must fight a 5-year war we must not break down the social, civic and industrial fabric of our country. Above all we must not bring about this disorganization of industries that Mr. Vanderlip so freely mentions.

Mr. Vanderlip has many friends and well wishers in America. For years he has been regarded as one of our biggest and our best and most efficient men, and it is to be regretted that at this time he is found in a rôle that is so directly opposed to the economic welfare of the nation he is so energetically endeavoring to serve.

We Must Serve

THE war will be won by service. Those of us who cannot fight can work. And we can and must use our heads and hands as we never used them before.

Thousands of manufacturing plants are making war material, but thousands of others must serve by speeding up their output of materials designed for peace, but no less necessary for war. The motor car industry is one of the most important in the present crisis. More cars are needed, both passenger cars and trucks. New types and new methods of construction are necessitated by the unexampled condition confronting us.

If the government requires the unusual it must be forthcoming without delay; therefore the factories must be kept at the highest point of efficiency and so highly organized that no sudden call on their resources need go unheeded or fail to find immediate response.

Our industry is turning out not luxuries *but vital necessities*, and the men engaged in it are helping to win the war first, but are in the enviable position of increasing their own businesses while so doing.

We are gradually settling down to a realization of the facts as they are, and the farseeing leaders are encouraging the others to serve their country and themselves by keeping the wheels turning.

Putting fear and excessive caution aside, it is the duty and privilege of every manufacturer, every executive and every workman to serve with all his intelligence, all his courage and all his strength and skill until the world is again fit to live in, and lasting peace and the rewards of peace are restored.

Service will win the war.

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N. A. D. A. Plans to Form War Committee

Directors Meet During New York Show and Begin Work of Co-operation with the Government

NEW YORK, Jan. 7—The board of directors of the National Automobile Dealers' Association met at the Biltmore today and began plans for the entry of the organization into co-operation with the Government.

The first step will be the naming of a War Service Committee to assist in the elimination of waste and inefficiency in business, as a measure of co-operation with the Chamber of Commerce of the United States and the Commercial Economy Board of the Council of National Defense.

The committee will consist of ten members, six of whom are already selected. They are: F. W. A. Vesper, St. Louis; George W. Browne, Milwaukee; John A. MacAlman, Boston; George D. McCutcheon, Atlanta, and Harry E. Pence, Minneapolis. This committee will organize in about two weeks and begin the formulation of suggestions for improving business along the new lines.

"One of the big ideas we have in mind," said Vesper, "is that there must be no thought of pessimism or backwardness. It is all right to use the term economy if it is correctly used, but when economy is considered as a stoppage of business without reason it is a wrong idea. Our purpose in this committee is to eliminate waste, which is good business at any time and is especially good at this time. Dealers must be better business men, not poorer business men."

Abbott in Bankruptcy

CLEVELAND, O., Jan. 4—An involuntary petition in bankruptcy was filed in the Federal Court Friday against the Abbott Corp., manufacturers of the Abbott passenger car. It is estimated that the assets of the corporation are $50,000 and the liabilities are about $200,000. A. W. Gardiner, secretary of the Abbott Corp., states that the assets will reach a much higher figure. Concerning the bankruptcy proceedings, the statement of the company is that the plant has temporarily suspended operations, and that it is still believed that the contemplated merger of the Abbott Corp. and the Hal Motor Co. will still go through. It is the plan of the company, when combined, to make the Abbott and Hal passenger cars, and bring out a new motor truck. The Abbott Corp. was formerly located in Detroit, but moved into a new plant in this city about a year ago.

John S. Conwell Dies

LOS ANGELES, Jan. 4—Nothing of a similar nature has so affected the motor car trade here as the recent death of John S. Conwell, known as the dean of automobile row. He was a member of the firm of Conwell & Hathaway, motor car dealers, and the oldest man actively identified with the trade in the city. He was president of the City Council and a former president of the Motor Car Dealers.

For three consecutive years he had been the active manager of the local show conducted by the dealers' association, and it was due largely to overwork in connection with the recent show that the physical breakdown, which was followed by his death, was brought on.

Cassidy Branches Out

NEW YORK, Jan. 7—The Edward A. Cassidy Co. has opened a western branch office at 1716 Michigan Avenue, Chicago, to bring its western trade into close contact with the company officials. R. G. Ames, division manager for Chicago and surrounding territory, will have charge.

King Prices Revised

DETROIT, Jan. 7—The King Motor Car Co. has revised its prices as follows:

	New	Old
7-passenger touring	$2150	$1650
4-passenger foursome	2350	1700
Roadster	2150	1585
7-pass. convert. sedan	2950	2300

Wire wheels cost extra except on the foursome, which is equipped with 32 x 4½ cord tires.

Towar-Ayers Takes Denby

DETROIT, Jan. 7—The Towar-Ayers Co. of Detroit will hereafter handle Denby trucks exclusively. The business is in charge of John B. Hance, sales manager, and Frank M. Hecox, secretary and treasurer.

Rex in Convention

NEW YORK, Jan. 7—The Rex Ignition Mfg. Co.'s annual sales convention began this morning at Krug & Zinn's restaurant. Twenty-three division managers from the Central West, the South and the East participated. Hugo Kirschbaum, president of the company, was chairman. There is to be a three-day session, the daylight hours being devoted strictly to business and the evening hours to a social program. The Rex company will hold a similar convention in its Chicago branch office Jan. 15, at which time the branch managers from the coast and the Southwest will be the conferees.

Baker International Representative

NEW YORK, Jan. 8—Benjamin F. Baker has been appointed wholesale representative in New York for the International Harvester Co. He will make his headquarters at the Philadelphia factory branch. Baker was formerly Brooklyn manager and efficiency expert for the Garford Motor Truck Co.

Ford Takes Part of Holley Plant.

DETROIT, Jan. 7—The Ford Motor Co. is taking over that part of the Holley carbureter plant used in the manufacture of carbureters for the Ford Model T. At present the Holley Brothers Co. is reorganizing as the Holley Kerosene Carbureter Co., and will manufacture the new kerosene carbureter recently announced, together with its regular carbureter models.

Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Glenn P. Thayre, manager of the Demountable Wheel Co., has resigned to enter Government service. Walter Grobe is now manager.

Frank Eldridge, formerly manager of the Wallace C. Hood Service Bureau, is now with the King Auto Sales Co., 998 Woodward Avenue.

Earl W. McGookin, of Detroit, will represent the Tillotson carbureter in the State of Michigan and also in the city of Cleveland.

Fred M. Warner, Dixon, Ill., has taken a position as vice-president and general sales manager of the Interstate Tractor Co., Waterloo, Iowa.

M. J. Osborn, president of M. J. Osborn, Inc., St. Paul, Willys-Knight dealer, has withdrawn from the business and expects to become a banker. F. A. Brodt Service Company, F. A. Brodt, president and treasurer, a new corporation, has bought the service station, 305 West Third Street.

William A. Carroll, for several years associated with large motor manufacturing interests at Milwaukee, Wis., has become chief engineer and works manager of the Erd Motor Co., Saginaw, Wis., and also will act as director of sales and advertising.

C. J. Cunningham has been made service manager of the Detroit Weatherproof Body Co. For the past 3 years he has been working in the factory with this position in view.

George M. Ellis and W. C. Dudgeon have joined preparatory classes for the ordnance department at Ann Arbor. Both were connected with the Campbell Ewald Advertising agency. L. W. Chamberlain of the Carl M. Green Advertising agency is planning to join them.

A. N. Pearson has been made district representative in the New England states for the Denby Motor Truck Co., and will have his headquarters in Boston.

Charles E. Pagett, St. Louis, salesmanager for the Federal Motor Truck Co., that city, has been appointed manager of the truck department of the Packard-Missouri Motor Co., for which he formerly worked.

G. G. Giese, St. Louis, secretary and manager of the Panama Rubber & Equipment Co., has joined the United States Army Quartermaster's Department.

Donald F. Whitaker, sales and advertising manager of the Detroit Truck Co., has resigned.

Ivan R. Gates, who has promoted several salon and truck shows in San Francisco and Oakland in the past three years, has enlisted in the army and will be attached to the aviation corps. Gates was formerly a prominent racing driver.

C. J. Welch, a pioneer in the automobile business since the days of one cylinder Wintons, and a former team mate of Herb Lytle, Pope Toledo and Apperson, speed demons, has become manager for the King Auto Sales Co., Detroit, distributer for the King 8 and the Elcar. F. H. Grossbeck, former manager, enters the government service.

James H. Foster has been made service manager and superintendent of the King Auto Sales Co. He was formerly chief inspector at the Chalmers Motor Co. and at the Lozier Motor Co.

Roy Coffeen has been made branch manager of the Willys-Overland, Inc., succeeding M. O. Bridgman, who has been branch manager for the past 5 years.

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Big Show Planned for Oklahoma City

To Feature Cars, Trucks and All Sorts of Transportation Vehicles for the Great Farm Country

OKLAHOMA CITY, Jan. 5 — The Oklahoma City Motor Car Dealers' Association will hold its second annual automobile show Jan. 22 to 25. These are approximately the same dates as last year.

A number of sites were considered, but the committee was unable to obtain any of them, and the show had almost been given up when "Dick" Carhart, of the Carhart Motor Co., offered his new Overland building. This building has been occupied about three months, is 73 x 150 ft., has four floors and offers sufficient space to accommodate about 100 cars and trucks.

Carhart is moving out his service station as well as the cars that he had in storage, and will use only his offices during show week. He is also buying his space in the show the same as any other exhibitor.

The Farm Power Equipment Show, which will take in tractors, tractor plows, gasoline engines, electric lighting plants, milking machines, power washers, small threshers, etc., will be here the same week, under a large tent, 90 x 290 ft.

A large advertising campaign is being put on for both shows, and the attendance at the automobile show is expected to be more than three times that of last year. Almost the entire exhibit space offered was taken by members of the Oklahoma City Association.

Both shows are being managed by Ray H. Haun, who is in charge of the service department of the Oklahoma Farmer-Stockman.

Kalamazoo Show Feb. 5 to 9

KALAMAZOO, MICH., Jan. 3—The annual automobile show of the dealers' association will be held in the Armory Feb. 5 to 9, inclusive. To date 22 exhibitors have engaged space for cars and accessories, and in addition there will be several truck exhibits. H. J. Cooper, W. O. Harlow and R. E. Fair are in charge.

Hartford Sells All Space

HARTFORD, CONN., Jan. 5—Practically all space for the annual Hartford automobile show was allotted at a meeting of the Hartford Automobile Dealers' Association, Inc. This year the show will be held the week of February 16 to 23. The main floor will be devoted to cars and accessories and the basement to trucks. In fact the truck section this year will be nearly as large as the passenger car section, 25 spaces having been set aside for the purpose. The same show committee as last year will be in charge.

Present indications point to a much bigger and better attraction than ever before. Fifty per cent of the proceeds is to go to the Connecticut Home Guard, which is now stationed in the Broad Street Armory, the First Regiment having been sworn into the regular armed forces some time ago. The show committee announces that good progress has been made to date.

Grand Forks Show Feb. 19-22

GRAND FORKS, N. D., Jan. 5—The annual automobile show by the dealers here will be Feb. 19-22. After a conference it was found advisable, according to J. W. Lyons, in charge of publicity, to hold the show as usual.

Calumet Show in April

CALUMET, MICH., Jan. 5—The Copper County Automobile Dealers' and Garage Owners' Association will hold its annual Upper Peninsula automobile show in the Colisseum from April 17 to 20.

Essay Contest to Stimulate Car Show

MILWAUKEE, WIS., Jan. 3—The Milwaukee Automobile Dealers, Inc., has arranged two essay contests. Two $50 Liberty Bonds will be awarded to stimulate interest in the first annual Milwaukee commercial car show, which will follow immediately upon the tenth annual passenger car and accessory show in the Auditorium, Jan. 18 to 24, and last three days, or until Jan. 27. One contest is limited to motor truck drivers, who will write essays on the topic, "The Best Method of Caring for a Motor Truck." High-school students will write on "The Value of Motor Truck Transportation." Each set of essays will be judged by a jury of three experts.

Whiting Gets International.

NEW YORK, Jan. 8—The International Harvester Co. hereafter is to be represented in New York. The Whiting Motor Co., which for the past nine years has handled Mercer passenger cars, has been appointed International distributer for New York and Newark, N. J., territory. Whiting will continue to handle the Mercer. There will be a new 2-ton International truck brought out this month.

Wilmington Show Looks Good

WILMINGTON, DEL., Jan. 3—The management of the coming Wilmington Automobile Show, which will be held at the Hotel du Pont the week of Jan. 21, feels quite optimistic, and no effort will be spared to give the show a strong public appeal. An addition to the hotel is being built, and would probably have been completed had it not been for interference by the war, and if it had been completed the show could have profited accordingly. However, it is believed there will be an opportunity to show at least one of every make of car handled here and all of the latest accessories.

According to the management a special appeal is to be made this year to the prospective rural buyer, and an effort will be made to secure as large a country attendance as is possible.

Vanderlip Says We Should "Economize"

Before Rubber Association Suggests the "Curtailment" Policy That Now Finds Small Favor

NEW YORK, Jan. 7—Frank A. Vanderlip of the National City Bank, and who is now operating for the Government in connection with the war thrift loan, addressed the Rubber Association of America to-night at the Waldorf-Astoria and reiterated those policies which have caused comment for several weeks.

Mr. Vanderlip maintained that the individual in our nation should be more economical and that he should not spend so much money. He maintained that if we are to win the war we must cease to buy many of the things we have purchased in other years; that we must cease to buy what he terms luxuries; and he is credited with having indicated earlier in the day that the motor car was a non-essential. The car, by the way, has long since ceased to be classed by our Government as a non-essential.

Mr. Vanderlip talked of the need for greater factory capacity, but he did not point out any particular use that would be made of factory capacities if all the factories in America offered themselves to the Government to-morrow. He talked of the need for releasing labor for Government work, but he did not point out where men are needed, what they are needed for or anything of that kind.

Make the Old Hat Do

He is also credited with having stated in St. Louis that if a man's old hat will last several months longer he should not buy a new hat until that time has passed.

"Some people fear that we may disorganize business," he said. "The tragedy of it is going to be that we are not going to disorganize certain kinds of business enough. In the period of such tremendous prosperity, in a time when the wage fund is so great, when the profits of agriculture are so tremendous, it is going to be impossible to take this lesson of economy with 100 per cent efficiency to 100,000,000 people. What I fear is that we shall have the greatest business in luxuries we have ever known, that people will unconsciously exercise their command over labor, over material, over shop room and transportation and will interfere with outfitting this army."

He said the Government had appropriated $19,000,000,000 for the purchase of raw materials and had been unable to spend this money because there were not enough things produced to spend it for. He did not agree with the policy that we must expand our industries to effect greater production, but indicated that we must cease some of our production in order to make room for war work, which is contrary to the idea of the expansion of industry that is now recognized by most of our readers as the only sound course to follow.

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New Membership Plan by Ohio Association

Organization To Ask for 20% of Pledges of $15,000 Made at Recent Columbus Reorganization

COLUMBUS, OHIO, Jan. 4—The board of directors of the Ohio Automobile Trades Assn. has laid out a membership campaign and is about to issue a call for 20 per cent of the pledge of $15,000 made by tradesmen throughout the State for promoting organization work. The plan includes speakers, newspaper publicity and mail propaganda. A chairman is to be appointed in each county, and it is proposed to hold a meeting in Columbus Feb. 6, at which it is expected there will be a large attendance. This is the first meeting of the Ohio board of directors since the recent convention in Columbus.

Larrabee Offers New 5-Ton Truck

BINGHAMTON, N. Y., Jan. 6—A new 5-ton model Larrabee, known as model T, has been put on the market by the Larrabee-Deyo Motor Truck Co., Inc. The largest model made by this company heretofore was a 3½-ton truck. At the annual meeting of the company held Dec. 31 all the officers were re-elected. R. H. Deyo, the vice-president and general manager, reported an increase in business of 210 per cent.

New Prices for Dort

NEW YORK, Jan. 5—New prices for the Dort were made public to-day. The five-passenger touring car and the roadster which were $725 are now $865. In the four-season line, the sedan, which was $1,095, has been made $1,265; the sedanet, a convertible type, has been raised from $845 to $1,000. A new coupe model not heretofore manufactured has been brought out at $1,265.

$3,000,000 War Order

LANSING, MICH., Jan. 4—The Prudden Wheel Co. and the Auto Wheel Co. have received a Government contract calling for $3,000,000 worth of escort wheels. These contracts must be completed by Dec. 31, 1918, and are proportional to the representative productive capacities of the two concerns. It is estimated that the Auto Wheel Co. will require 800 additional employees to complete the work in that time. Other big orders calling for the same type of wheel have been placed with the Kelsey Wheel Co. of Detroit and the Hayes Wheel Co. of Jackson.

War Work for Stearns

CLEVELAND, Jan. 5—The F. B. Stearns Co. has received a contract involving several millions of dollars to manufacture airplane engines for the British Government. It is a sub-contract of the Rolls-Royce Co., Ltd., and all but a few minor parts will be manufactured by the Stearns company. This, of course, necessitates several additions to the Stearns factories. Land west of the factory is under control and doubtless this will be used. Car manufacture will be continued.

Has Contract for 500 Class B Trucks

INDIANAPOLIS, IND., Jan. 3—The Service Motor Truck Co. of Wabash, Ind., has signed a contract to build 500 Class B heavy duty motor trucks for the United States Government. The company expects to start work on the order early this month and plans to complete 100 trucks each month until the order is filled.

Ford Output Normal

DETROIT, Jan. 5—All rumors to the contrary, the production of the Ford Motor Co. still continues above normal. During the months of September, October and November a total of 234,774 cars have been manufactured, or an average monthly production of 78,258 cars. This has been done coincident with the manufacture of Government material, and unless subsequent Government orders materially decrease the production, the company will reach its schedule for the year totalling 900,000 cars.

$50,000,000 for Air Bases

WASHINGTON, D. C., Jan. 4—The expenditure of $50,000,000 for construction of aeronautic bases in this country was proposed yesterday by Secretary of War Baker in a report to Congress. The secretary's report intimated that further information on this subject would be disclosed in closed hearings of the committees. The location of the new bases was not mentioned and the secretary disposed of the $50,000,000 as follows:

Twenty-four million dollars for 16 aeronautic stations in the United States; $3,500,000 for 20 balloon stations in the United States; $4,420,000 for aviation bases in Hawaii; $5,420,000 for aviation bases in Panama; $12,000,000 for equipment of the various bases.

Canada Sees Trouble Ahead

MONTREAL, Jan. 5—It having been reported throughout the trade in Canada that the Government proposes to restrict the importation of gasoline and motor cars, the automobile dealers are planning to lay facts before the Government to prove that such action would be harmful to the Dominion. The Montreal Automobile Trade Association through its manager, T. B. Kirby, is gathering information, and it is probable that a meeting of the trade will be held at an early date.

Disbrow with Moore

MINNEAPOLIS, Jan. 7—Louis Disbrow, famous automobile racer and engine designer, has joined the Moore Motor Vehicle Co. in the capacity of chief engineer. After attending the New York and Chicago shows he will assume full charge of the engineering department of the Danville factory.

Flint Isn't at All Worried About War

Bank Clearings, Due to Car Production, Are Big, and 1918 Looks Like Prosperous Year

FLINT, MICH., Jan. 4—That the past year has been one of prosperity has been indicated by a marked increase in bank clearings, as shown in a final yearly report. Clearings for the year just past amount to $86,256,684. This is practically three times what they were in 1914 at the beginning of the war. Much of this prosperity can be directly traced back to manufacturers of cars and parts.

The largest of these is the Buick Motor Co., which is at present engaged on substantial war orders for Liberty engines and munitions. During the past year this company has completed a large office building at a cost of $500,000. The biggest problem was the freight car situation, and this is being relieved by drive-aways.

The Champion Ignition Co. has increased its production from 35,000 to 50,000 A. C. spark plugs a day, and plans to increase this to 80,000 plugs a day in the coming year. This will necessitate an increase in floor space and equipment and in the number of workmen employed.

The Chevrolet Motor Co. reports a large volume of business in the past year with its peak production in October. Indications are that this peak will again be approached during the months of February, March and April.

The Dort Motor Car Co. with its Canadian associate increased its production about 100 per cent in the past year. In 1916 8000 cars were produced, and it is expected that both plants will manufacture about 20,000 cars in 1918. The other automotive concerns, the Marvel Carbureter Co., the W. F. Stewart Co., body manufacturers, and the Flint Varnish & Color Works, all report marked increases in the volume of business. The latter company states that the increase in the past year has been about 40 per cent and the nearly 500,000 cars have received their finishing coats from this plant.

Can Work for Enemies

WASHINGTON, D. C., Jan. 4—The War Trade Board has announced that manufacturers who have made contracts with enemy aliens in neutral or allied foreign countries can fulfill these contracts if breach of them would violate the laws of the country in which they have been made. This applies only to contracts already made and in force, and all such contracts which are fulfilled must be reported to the board within 30 days.

Troy Gets War Order

TROY, OHIO, Jan. 5—The Troy Wagon Works Co. has received a Government order calling for 100 2 to 5-ton Troy trailers of special design for the Signal Corps.

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Words of Optimism

This Is the Idea

Editor Motor World: As far as our Show is concerned we hear absolutely no objections. On the other hand, there seems to be just as great interest in the show as ever before.

The Muehlebach Hotel manager informed me a day or two ago that he had received by far more reservations for the Motor Show time than he did last year up to this date.

Personally, I think the non-essential and the essential things are being overdone by a lot of people who think they are going to save the country by *loud shouting*.

My idea is that if this war is going to be won, it is going to be won with dollars, and if it is going to be won with dollars, dollars must be made during the war.

That means that the lines of production which are making dollars must continue to make them and I *get tired of hearing talk of "cutting this out and cutting that out."*

I will be glad to keep you advised on the situation here, but all lines of business are standing up remarkably well and are improving over the conditions of three months ago.—E. E. Peake, Secretary-Treasurer, Kansas City Motor Car Dealers Association.

Cassidy Sees 1918 Prosperity

"The majority of the jobbers with whom our men come in contact did big business during October, November and December, 1917," said Edward A. Cassidy, president of an accessory distributing company of New York that bears his name. "In some cases the increase was more than 100 per cent as against the same months in 1916. The causes, in my mind, have been various.

"There's been the settling down to normal, a reaction from war fears; there has been the readjustment of financial affairs following the proof of the nation's stability by over-subscription of Liberty loans. Government control of railroads, followed by the President's statement of the nation's policy in regard to the roads and the safeguarding of the interests of security holders, has increased confidence in great measure—a confidence already perceptible at this show.

"For ourselves, we can say that November and December orders on the lines we sell showed a great increase, indicating that increased jobbers' business was directly reflected by increased orders to manufacturers.

"While no one has shown sales records that forecast a period of business inflation, practically every manufacturer with whom we have discussed conditions has expressed himself as very sure of a big year in 1918. One manufacturer of a staple commodity did more business in December than in any other month of his history.

"Personally, we are never inclined to be either optimistic or pessimistic; we believe in facing facts and working with our eyes wide open to the meaning of conditions. Considering the facts in our industry, in the affairs of the nation and in the money market, we confidently look forward to a year's business far greater than that of 1917."

Benford Sees Big Business

December was the biggest month in the history of the Benford Mfg. Co. of Mt. Vernon, N. Y., according to Sales Manager David Levin. Instead of any decrease following the beginning of the war the business increased steadily since August, and December is 20 per cent greater than August. Levin is looking forward to the biggest year the company ever had. He states that with the need for more equipment because of the operation of the more than 4,000,000 cars in America business in his particular line must of necessity be exceedingly good.

Reo Shipping 150 Cars Daily

LANSING, MICH., Jan. 3—The daily shipments of the Reo Motor Car Co. average from 125 to 150 cars, and many of these are being driven overland by the dealers themselves. Some of these cars are being taken by the dealers and stored at points near this city in the hope that the freight-car situation will ease up slightly and permit them to be shipped to their ultimate destination. Whenever possible, however, drive-aways will be made.

The Reo Motor Car Co. is tooling up preparatory to the manufacture of tractors for the United States Government. It is stated that this work will not materially reduce the production of the Reo company, as it works in nicely with the equipment and labor at hand. Hence the Reo dealers throughout the country will suffer no particular hardship. There are at present about 3500 cars on hand ready for transportation if the equipment were available, and officers of the company state that government control of the railroads will doubtless better the freight car situation.

Minnesota Crop Doubled in 1917

MINNEAPOLIS, Jan. 3—Minnesota crops for 1917 were double those of 1916, as reported by the Minnesota field agent at Fergus Falls. Combined value of all crops was $447,498,000, as compared with $211,898,000 in 1916. On every crop on Dec. 1 the price was higher than in 1916, except potatoes. The latter crop figured at 91 cents, as compared with $1.30 Dec. 1, 1916.

Combined winter and spring wheat for 1917 measured up at 57,965,000 bushels valued at $117,089,600 on the farm, as compared with 26,410,000 bushels with farm value of $42,784,000 in 1916. Corn's total value, at $33 per acre, was $99,000,000. Onions showed the largest returns per acre, or $504.60, totaling $732,000.

This gives an idea of the purchasing power of the farmer in the Northwest for the 1918 automobiles. With something like 80 per cent owned already by farmers the possibilities of a continuing business by automobile dealers with this class seem to be doubled for 1917-1918 as compared with the previous year.

Big Car Registration in Ohio

COLUMBUS, OHIO, Jan. 7—Demand for 1918 tags in Ohio is greater than ever before for this early in the year. Applications are almost overwhelming the office force, and up to Jan. 3 the department had issued approximately 100,000 sets of tags.

Ford Company Increasing Working Force

DEARBORN, MICH., Jan. 5—Henry Ford & Son, Inc., is taking on a large number of additional help, and those needed are tool makers, die makers and metal and wood pattern makers. It is these men that are required to equip the factory and increase production of the Ford tractory. At present about 1400 men are employed.

Northway Company to Make Cars

BOSTON, MASS., Jan. 4—The Northway Motors Corporation has been formed at Boston, Mass., and has secured a charter to manufacture cars and trucks. R. E. Northway, formerly head of the Northway Co. of Detroit, that made motors, transmissions, rear axles, etc., and was taken over by General Motors in 1909, has come East to be chief engineer. Senator James E. Cavanagh is president. James E. Finneran, head of a big drug company, is treasurer, and some men prominent in other lines comprise the board of directors. The company has been incorporated for $5,000,000. The plant will be located in Boston.

Savannah Dealers Hope for Better Railroad Transportation Service

SAVANNAH, GA., Jan. 3—Automobile dealers are facing the new year with a new aspect of the railroad transportation problem staring them in the face. Having been for some months at the mercy of the individual railroad systems for deliveries and getting more or less sorry results they are now wondering what provisions will be made for the shipment of passenger cars and trucks by the Government since it now has charge of the railroads.

The optimists among the dealers, however, are looking forward to better deliveries because, they figure, now that the railroads are under one governing body higher efficiency will be the result and shipments and deliveries will be more prompt.

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The Washington Situation

WASHINGTON, D. C., Jan. 5—Congressional investigation of the Council of National Defense, new bills for revising the Council, suggestions for a Secretary of Munitions and optimistic reports from the aircraft board marked the most important events of the week.

The Congressional investigation pursued mainly by Congressmen McKellar, Chamberlain and Weeks, though not conclusive in its findings has resulted in a bill by Congressman McKeller demanding that officials of the Council be men not in any way affiliated with companies engaged in or seeking war work. It is a bill that carries many possible dangers with it. It plans to pay large salaries in place of the present $1 per year. It plans to place men in charge of departments of purchasing power whose main qualification is that they are not connected with the industry with which they must be familiar enough to place orders running into millions of dollars.

Suggest Large Salaries

One plan suggested is that the large salaries that may be paid will secure experts in each line willing to give up their present positions. This sounds reasonable, yet several obstacles to efficiency stand in the way. First, it is likely that a man giving up a position to join the Government forces may be unable to withstand his friends in the industry. Second, the men to be secured as experts will be appointed by the Director of the Council and such a plan will allow for political pressure, for partisanship, for petty politics, and for the installation of politicians in place of experts as the buyers for the Government and its Allies, regardless of whom the Director might favor, as past experience has shown appointive positions plus large salaries always mean politics.

If Senator McKellar's bill is passed it would mean the discharge of H. L. Horning, now in charge of the automotive section. It would not take away men like Julius Rosenwald, whose companies are not engaged in war work, but it would remove every expert in any line who has affiliations with his industry.

The bill by Senator Chamberlain calls for an addition to the President's cabinet of a Secretary of Munitions, similar to the Minister of Munitions of England. This plan is expected to remove present purchasing difficulties and to co-ordinate all buying. It will not, however, have such a result. Under the system by which it is designed, it is likely that such a Secretary of Munitions would have only direct supervision of the Ordnance purchases, and that we would find, as England found several weeks ago, after four years of war, that its purchasing powers are not even now co-ordinated and actually reside at present in the hands of the Air Board, the Ministry of Munitions and the Admiralty of War Office.

To have a really efficient purchasing plan in this country we should have some individual or body of men in whose hands power for making all purchases for all war and navy supplies for the United States and all the Allies would reside.

Judge Lovett, whose priority orders were suspended this past week, requests that statement of facts be made to show that reports testifying that his priority orders caused congestion of freight are untrue. Judge Lovett states that the congestion was actually caused by an old "hold over" tag system designed in the Mexican war and used until recently by the War Department.

During the Mexican trouble railroads issued blue tags to the War Department to be placed on all war shipments in order to secure preference for them in transportation. Every clerk was given hundreds of these tags. When the world war developed these tags were in the hands of clerks who have used them until recently upon every package or freight car that was in any way connected with war work. This, according to Judge Lovett, has been the real cause of a considerable part of the freight congestion.

The Council of National Defense through its committees is attempting to find a solution to present and future war problems. In an interview this week Director Gifford of the Council stated that he believed the labor problems of the war were not connected with the usual routine of the Department of Labor and that the Council committees are working independently of the Department.

Looking After Labor

At the Department of Labor this last week it was stated that the Department knows fully the existing and coming labor problems and is prepared to care for them efficiently. Again, an example of different Government divisions working separately on the same problems.

Interesting in view of the above comes the report from the Shipping Board that it plans to send speakers about the country to secure workers for the ship yards by an appeal to the patriotism of the workers. With three agencies working on the same problems we should see either speedy gathering of more than enough workers, or a confusion arising that will bring more delay.

The Aircraft Board, according to Howard E. Coffin, is making all the progress that can be expected, and is up to its schedule in every instance. Coffin is very optimistic as to the great part our country will play in the war with its huge fleets of airplanes. In an interview this week he stated that most of the contracts for aircraft work are now being placed in the Middle West to avoid the freight congestion that accrues when too many orders are placed in the East. He told that 10 training planes are being produced daily in this country now and that thousands of the highest class of men are being given flying instructions on American fields.

At first we sent many of our potential flyers to France, but recent advices from that country were to the effect that they had as many men as could be properly cared for and as a result the numbers training in this country are now increasing rapidly. Training machines have been shipped abroad and to other countries for some time, but these too are now being used at home since the foreign countries advised that they have received a sufficient number for the time being.

All eyes are turned toward the new railroad dictator and many are wondering what the result of his activities will be. They seem entirely constructive. Plans are being made for building up the roads, the freight cars, the locomotives and the various warehouses and docks and terminals.

Prospective Priorities

It is most certain that at times and possibly often war work will have to have the right of way and we may see priority orders issued again in the future allowing fuel, munitions or food priority over other materials or articles, but such methods are to be expected at least so long as our roads are in their present shape and we should take them patiently hoping that the new building up measures will soon result in adequate freight transportation for all materials and merchandise of the nation.

Schaniel to Handle Merchant's Tightener

SYRACUSE, Jan. 7—J. H. Schaniel has taken over the exclusive selling agency for Merchants' anti-skid chain tightener. The device is made by M. H. Merchant, Syracuse.

More Gas Than Ever, Says Bedford.

WASHINGTON, Jan. 7—There is no shortage of gasoline, according to a statement by Chairman A. C. Bedford of the Petroleum War Service Committee. "As a matter of fact," he said, "as a result of the light domestic demand incident to the winter weather, the stocks of gasoline are increasing and will further increase before the heavy summer demand is encountered."

Mercury Cars Coming from Long Island

NEW YORK, Jan. 7—Mercury Cars, Inc., which was recently formed in New York, is preparing to place on the market a four-cylinder car powered with a Weidely 3½ x 5½ engine and to sell for $2,750 to $2,950 in open models and $3,600 to $3,900 in closed models. The company has established a factory of limited size at Hollis, L. I., and plans to enlarge this considerably prior to the time active production of cars is commenced, which probably will be mid-summer of this year. The car, the first of which is on view at the Astor salon, is very simple in construction and has been designed to require the minimum of care. It will have a wheelbase of 114 in.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-44	6-3½x4½	25.3	Remy	Stmbg	Remy	DP	3	122	32x4	SS	1295	†1295	1295	....	1920	....	....
6-60	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1095	1095	....	....	1395	....	....
AMERICAN-SIX																	
A	6-3½x5	21.6	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1375	....	....	....	....	....
ANDERSON																	
Six-40	6-3½x4½	25.4	Conn	Zenith	Wsths	DP	3	120	33x4	SS	....	1435	....	....	2165	....	....
APPERSON																	
6-18	6-3½x5	29.4	Remy	Rafld	Bijur	DP	3	130	34x4	SS	†2200	....	2200	....	....	....	....
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	23.4	Remy	Rafld	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1595
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142½	34x4½	QD	3750	3750	4000	4550	4950	5250	....
BELL																	
17	4-3½x5	19.6	A.Kent	Zenith	Dyneto	D	3	112	31x4		....	895	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	E'mann	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
17	6-3½x4½	25.3	Remy	Stmbg	G & D	DP	3	118	32x4	QD	....	1385	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	7200	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3⅛x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	725	725	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	....	....	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1465
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 {125	35x5 34x4½	SS	2805	....	2805	....	3650	4145	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafld	Wsths	D	3	125	35x4½	SS	†1875	....	1875	....	2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	{117 {122	32x4 34x4	SS	1365	1365	1450	....	1850	2925	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafld	Wsths	DP	3	123	34x4	SS	†1595	....	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3⅛x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	620	620	....	....	1060	....	....
FA-5																	
FA-2	4-3⅛x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.45	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE																	
860	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	2195	....	2195	2695	{2895 {2995	....	....
COLUMBIA																	
	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1350	....	....	1995	....	....
COMET																	
6-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
Ultra 4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	....	....	....	....	....
CROW-ELKHART																	
CE-33-35	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	115	32x3½	SS	....	{935 {995	....	1195	1395	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	....	....	....	....	....	....	....
DAVIS																	
H & I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1485	1485	....	1850	....	....
J	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	124	34x4½	....	....	1785	1785	....	....	....	....
DETROITER																	
6-45	6-3½x4½	25.3	Conn	Ball	A-Lite	D		119	33x4	SS	‡1395	1395	†1425	....	1875	....	....
DISPATCH	4-3½x5	22.5	Bosch	Rafld	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....
DIXIE FLYER																	
LS35	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†995	995	....	....	1375	....	....
MADISON																	
4	.....	....	.....	.....	.....	..	.	124	34x4	....	....	....	....	....	....	....	....
	6-3½x5½	23.4	Remy	Rafld	Remy	DD	3	115	34x4	SS	†1485	1485	1485	....	....	....	....
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	795	....	....	1095	....	....	865
B	6-3½x5½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	975	975	....	1375	1375	....	....
MARION HANDLEY																	
6-60	6-3½x5½	29.4	Wsths	Stmbg	Wsths	DD	3	125	35x4½	SS	†1850	....	1850	....	2500	....	...
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3550	3500	3550	....	4950	5250	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K D	Simms	C	3	109	30x3½	C	†745	745	....	1095	1095	1095	855
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3500	3500	3500	....	4600	4650	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QD	3400	Raceabout 3250	..	....	....	....	....
METZ																	
25	4-3½x4	24	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.4	Conn	Rafld	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	‡1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	....	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinze	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
M-O	6-3½x4½	25.4	Heinze	Stmbg	Dyneto	D	3	117	33x4	SS	1195	1195	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	QD	565	‡635	....	....	965	....	....
N-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Tltsn	Wagner	DP	3	114	32x3½	....	....	1195	....	....	....	....	....
6-45	6-3½x4½	25.3	Delco	Rafld	Delco	DD	3	125	34x4	SS	‡1685	....	1685	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†1850	....	1850	2450	2450	....	....
MURRAY																	
1918	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafld	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-684	6-3½x5	25.4	Delco	Marvel	Delco	P	3	121	34x4	SS	1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	†1995	†1995	1995	2645	2820	....	....
Twelve	12-2½x4½	39.7	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	†2595	†2595	2595	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	1800	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	‡990	990	....	{1150 {1490	1190	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1467	....	....	....	....
37	6-2½x4½	18.9	Delco	Johnson	Remy	C	3	112	32x4	SS	†1185	1185	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	37	Conn	Carter	A-Lite	D	3	114	32x3½	....	†965	965	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	112	32x4	SS	†915	930	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Tltsn	A-Lite	C	3	{104 {106	31x4	C	780	795	†840	....	1240	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.6						{136			‡3950	†3950	3950	....	....	5000	....
W-32	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	{142	{35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								{136				....	4100	....	....	5650	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	{128	35x5	QD	....	3700	3700	5050	....	5250	....

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DOBLE	2-5 x4	....	Own	Doble Stmbg	Wagner		135	35x5	....	....	....	2500	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24	Delco	Stewart	N.E.	D	3	114	32x3½	SS	885	885	....	1350	1350	....	....
DORRIS																			
I-C-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	132	33x5	SS	....	....	....	....	....	....	....
DORT																			
9	4-3½x5	16.9	Conn.	Carter	Wsths	C	3	105	30x3½	QD	....	....	....	....	....	....	....
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	115	32x3½	SS	845	845	†845	....	....	....	....
ELGIN																			
	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1095	1095	....	1045	....	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.4	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	†1345	1375	1345	....	1685	....	..
FIAT																			
55	4-5½x6½	42	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3¾x4	22.5	Own	{Holly {Kngstn	....	D	2	100	30x3½rC		345	360	....	560	695	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	{32x4SS {33x4½		2050	2050	....	2850	2950	3200	..
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Radfid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	..
GRANT																			
K	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1055	1055	....	....	....	....	..
HAL TWELVE																			
	12-2½x5	39.6	....	Stmbg	Wsths	DP	3	135	34x4½	SS	3600	3750	3600	....	4500	5000	.
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	23.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	785	....	....	....	....	....
HARVARD																			
	4-3x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	750	†985	....	....	....	....	....
HOWARD																			
	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	750	....	....	....	....	..	....
HAYNES																			
36	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1595	....	....	2260	....	....
37	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1725	....	1725	....	2390	....	....
40	12-2½x5	36.3	Delco	Radfid	L-N	DP	3	121	34x4½	SS	....	2095	....	....	2760	....	....
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2890	....	....
HOLLIER																			
206	6-3½x4½	25.4	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1285	....	....	....	....	....
188	8-3x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1285	1285	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	35x4½	SS	1650	†1750	1650	1950	2175	2925	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1250	1250	....	....	....	....	....
	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	119	34x4	SS	1385	1385	....	....	....	....	..
NU	4-3½x5½	22.5	A.Kent	Zenith	Wsths	D	3	134	35x4½	SS	....	....	1540	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	..	....
JONES																			
	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	3	125	34x4	....	....	1675	1675	....	2550	....	....
JORDAN																			
Sixty	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2750	2500	....
KING																			
EE	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	....	....	....	....	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1295	1295	1385	1735	1735	..	1735
Double-6	12-2½x5	39.7	Delco	Stmbg	Own	DD	3	...	34x4½	....	1385	....	2250	....	2650	....	2650
KLINE																			
6-38-G	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	..
6-R	6-3½x4½	25.4	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	..
LIBERTY																			
6	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1350	1350	....	....	1925	....	..
LOCOMOBILE																			
38Series II	6-4½x5	43x3	Berling	Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
48 Series II	6-4½x5½	48.6	Berling	Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....

PAIGE																			
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1330	1330	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafid	Remy	D	3	127	35x4½	SS	....	....	1775	2850	....	3230	..
PAN-AMERICAN																			
	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1500	....	1650	....	1950	....
Paterson																			
6-45	6-3½x4½	25.4	Delco	Stmbg	Delco	C	3	117	32x4	C	†1295	1265	1295	....	....	....	..
PATHFINDER																			
3-A, B, C	12-2½x5	39.7	Delco	Stmbg	Delco	DD	3	135	35x5	SS	3250	3250	3250	....	....	....	.
PEERLESS																			
56-2	8-3½x5	33.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS	†2340	....	2340	2850	2990	3690	..
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½-5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Tilsn	Delco	DP	3	120	32x4	SS	†1295	1295	....	....	....	....	..
PREMIER																			
6-B	6-3½x5½	27x3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	2285	....	2285	....	....	....	....
PRINCESS																			
4-36	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	..	875	875	875	....	....	....	.
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	..
REO																			
M	6-3,⅜x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	..
T	4-4½x4½	27x2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1225	1225	....	....	....	....	..
ROAMER																			
R.A.	6-3½x5	23.4	Bosch	Stmbg	Bijur	DP	3	127	34x4	SS	2150	1850	....	....	....	....	..
ROSS																			
	8-3½x5	33.8	....	....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
B-5-R	4-2½x4	12.1	A.Kent	Schebler	Wagner	DD	3	96	30x3	DC	445	....	....	....	....	....	..
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	935	....	1395	....	....	..
SAYERS																			
	6-3½x4½	25.3	Delco	....	Delco	P	3	....	32x4	....	....	1395	....	..	..	..	..
SCRIPPS-BOOTH																			
D	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1425	....	....	....	....	....	..
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	1250	....	....	....	....	....	..
SIMPLEX																			
5	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....		....
SINGER																			
17	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	3800	†3800	3800	..	....	4750	....
STANDARD																			
8	8-3½x5	33.8	Splitdf	Zenith	Splitdf	D	3	127	34x4½	....	†1950	....	2450	..	3500	4000	....
STANLEY																			
Steamer	2-4x5	....	....	....	....	..	.	130	35x4½	SS	‡2550	2600	2225	....	....	....	....
STEARNS																			
SK14	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1785	1785	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2575	....	2575	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	....	‡1485	1485	1550	1660	1985	..	....
STUDEBAKER																			
SF-4-40	4-3½x5	24.4	Remy	Schebler	Wagner	C	3	112	34x4	SS	‡1025	....	1050	....	....	....	1250
ED-6-50	6-3½x5	36.4	Remy	Schebler	Wagner	C	3	122	35x4½	SS	1335	‡1335	1385	1850	1850	2750	1565
STUTZ																			
S	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	130	32x4½	SS	2550	†2650	*2750	....	....	..	....
S.Bearcat	4-4½x6	30.6	Bosch	Stmbg	Remy	C	3	120	32x4½	SS	2550	....	....	....	....	....	....
SUN																			
17	6-3½x5	23.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	..
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1340	1340	†1340	....	1885	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½ 32x4½	SS	†1890	1940 2290	1940	2790	2790	...	....
WHITE																			
16-Valve	4-4½x5½	28.9	....	Own	L-N	P	4	{124½ {137½	35x5 35x5	U	†4600	....	4600	5650	5650	5800	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Tltan	A-Lite	C	3	121	34x4½	SS	....	....	1525	2175	2225	2325	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2000	....	2700	2800	..
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Tltan	A-Lite	C	3	120	33x4½	SS	†1365	....	1365	....	2045	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2950	2950	3000	3865	4165	4165	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....
WOOD'S																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag		124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "B & Ball" Ball & Ball, "Atzr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "CU" Control Unit, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37½x5½r means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Coming—THE SHOW CALENDAR—*Events*

Is YOUR Show Listed? Send Us the Dates

New York, N. Y.	Salon, Automobile Salon, Inc., Astor Ballroom. John R. Eustis, Mgr.	Jan. 2-9
New York, N. Y.	Eighteenth Annual, Automobile Chamber of Commerce, Grand Central Palace.	Jan. 5-12
Washington, D. C.	Carnival and Open House Week Automobile Trade Assn. of Washington.	Jan. 11-18
Providence, R. I.	R. I. Licensed Auto Dealers' Assn., State Armory. Percival S. Clark, Mgr.	Jan. 11-19
Philadelphia, Pa.	Seventeenth Annual, Philadelphia Auto. Trade Assn., Wanamaker's Garage.	Jan. 12-19
Rochester, N. Y.	Tenth Annual, Exposition Park C. A. Simmons, Mgr.	Jan. 14-19
Milwaukee, Wis.	Milwaukee Automobile Dealers, Inc., Auditorium. (First 7 days, passenger cars; last 3 days, commercial cars). Bart J. Ruddle, Mgr.	Jan. 16-25
New York, N. Y.	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Jan. 19-26
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Jan. 19-26
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wigmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27
Detroit, Mich.	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	Jan. 19-26
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	Jan. 21-26
Wilmington, Del.	Wilmington Automobile Show Assn., Hotel Du Pont. H. N. Partington, Mgr.	Jan. 21-26
Scranton, Pa.	Scranton Motor Trades Assn., Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
Portland, Ore.	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	Jan. 21-26
Oklahoma City, Ok.	Oklahoma City Automobile Dealers' Assn., 701 No. Broadway. Roy H. Haun, Mgr.	Jan. 22-26
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26
Scranton, Pa.	Scranton Motor Trades Assn. Armory. Hugh B. Andrews, Mgr.	Jan. 21-26
Baltimore Md.	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Armory	Jan. 22-26
Allentown, Pa.	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisering, Publicity Mgr.	Jan. 23-28
York, Pa.	York County Auto. Dealers' Assn., Tabernacle. T. F. Pfeiffer, Sec.	Jan. 26-Feb. 3
Bridgeton, N. J.	Bridgeton Automobile Dealers' Assn.	Jan. 26-Feb. 2
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Jan. 26-Feb. 2
Harrisburg, Pa.	Capital City Motor Dealers' Assn J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	January
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland. Mgr.	February
Minneapolis, Minn.	Twin City Automobile, Truck Tractor and Industrial Exposition, Minneapolis Auto. Trade Assn. Walter B. Wilmot, Mgr.	Feb. 2-9
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger cars.	Feb. 23-Mar. 2
	Trucks	Mar. 5-9
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	Feb. 5-9
Bronx, N. Y.	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16
Binghamton, N. Y.	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9
Lancaster, Pa.	Automobile Track Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	Feb. 6-9
Portland, Ore.	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	Feb. 6-13
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16
Kansas City, Mo.	Third Annual Tractor, Kansas City Tractor Club.	Feb. 11-16
St. Louis, Mo.	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16
Hartford, Conn.	Show, Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
Albany, N. Y.	Albany Auto. Dealers' Assn., State Armory.	Feb. 16-23
San Francisco, Cal.	Second Annual, Motor Car Dealers' Assn. of San Francisco, Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Nashville, Tenn.	Nashville Auto Trade Assn., Hippodrome.	Feb. 18-23
Des Moines, Ia.	Ninth Annual Passenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet and Dean Schooler, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L Elliot, Mgr.	Feb. 18-27
	Commercial Vehicles	Feb. 2-9
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn. Auditorium.	March
Quincy, Ill.	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-23
Muskegon, Mich.	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino	Mar. 2
		Feb. 27-Mar. 6
Columbus, O.	Auto Exhibiters Co. W. L. Carney, Mgr.	Feb. 27-Mar. 2
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 28-Mar. 2
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building Chester I. Campbell, Mgr.	Mar. 2-9
Clinton, Ia.	Clinton Automobile Dealers' Ass'n, Coliseum.	Mar. 6-9
St. Joseph	St. Joseph Automobile Dealers' Assn. Auditorium. John Albus, Mgr.	Mar. 6-9
Green Bay, Wis.	Brown County Automobile Trade Assn.	Mar. 8-11
Great Falls, Mont.	Montana Automobile Distributers Assn.	Mar. 16-20
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates	Mar. 19-24
Houlton, Me.	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-22
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Stockton, Cal.	San Joaquin Auto Trade Assn Samuel S. Cohn, Mgr.	Apr. 9-13

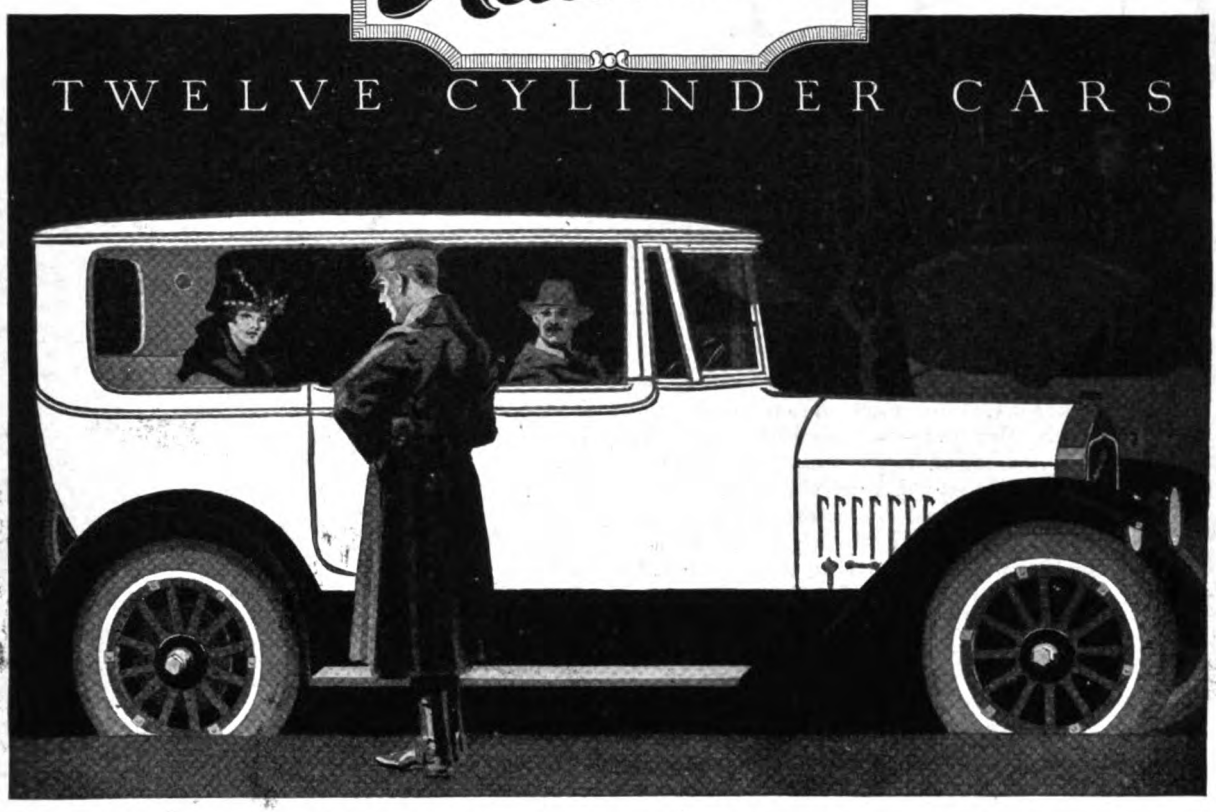
Conventions

New York	Convention, National Association of Automobile Accessory Jobbers, Hotel Astor.	Jan. 11-16
	World's Salesmanship Congress, Third Annual.	Jan. 16-20
Montreal, Can.	Convention of all men Interested in the Automobile Industry in Eastern Canada.	Jan. 22-24
Chicago	Annual Convention, Garage Owners' Assn of Ill., Green Room, Congress Hotel.	Jan. 29-31
Richmond, Va.	Richmond Automobile Dealers' Association, First Regimental Armory. Henry B. Marks, Mgr.	Jan. 21-26
Toledo, O.	Toledo Auto Shows Co.	Feb. 11-16
Duluth, Minn.	Duluth Automobile Trade Association. John J. Lane, Mgr.	Feb. 18-23
Great Falls, Mont.	Montana Automobile Distributors' Association, Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20

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National

TWELVE CYLINDER CARS



ANSWERING THE NEED *of* TODAY

THE nation-wide urge for basic soundness in economy and service is nowhere answered more sincerely than in this new twelve-cylinder National Sedan.

By perfection of material and careful construction it has been given an endurance and low operating cost that bring unusually high return on the owner's investment.

To this true economy is added its superiority as an all-season vehicle.

Luxurious and dignified as a limousine, it is equipped with studied reference to the complete utility essential in an all-purpose car.

The adoption of the smooth, twelve-cylinder, airplane-type motor has given ample power for all tasks—it is as able upon hills and country roads as upon smooth city streets.

Ease and simplicity of operation, constant reliability, roominess—it seats seven passengers—and its unfailing comfort have made it a favorite with women as with men.

This new National Sedan affords the full scope of automobile use—comfortable travel in all seasons, under all weathers and over all roads.

Its conversion from a closed car to an open one is instant and easy and in either model the beauty of its lines is preserved.

For the purchaser it offers that long term of service that is the final element in determining true value and economy—to the dealer it brings the advantage that accompanies year 'round sales opportunities.

NATIONAL MOTOR CAR & VEHICLE CORPORATION . INDIANAPOLIS
Eighteenth Successful Year

National Dealers Now Offer Complete Range of Body Styles in Both

Six and Twelve Cylinder Models

7-Passenger Touring Car, 4-Passenger Sport Phaeton
4-Passenger Roadster, 7-Passenger Convertible Sedan

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Comfort

¶ A car you'll want to live in. Fleet, buoyant, luxurious comfort for every passenger. Massive cushions and strainless ease. To its great springs and deep cushions, the Standard "8" adds its noiseless, throbless, uncomplaining whirl of machinery. Eight mighty cylinders pour their power into the short, rigid, perfectly-balanced crankshaft. The gears engage like velvet. You accelerate from speed to speed hardly conscious of swifter motion. ¶ Here is true beauty of performance. Not a trace of sidesway. Instantaneous getaway. You glide through the worst traffic without shifting from "high." Or mount a dismaying hill with robust acceleration without resorting to "low." ¶ Distributors and dealers in territory still open are invited to call on any of our representatives for a ride in this truly wonderful car.

Prices, $2450 to $4000.

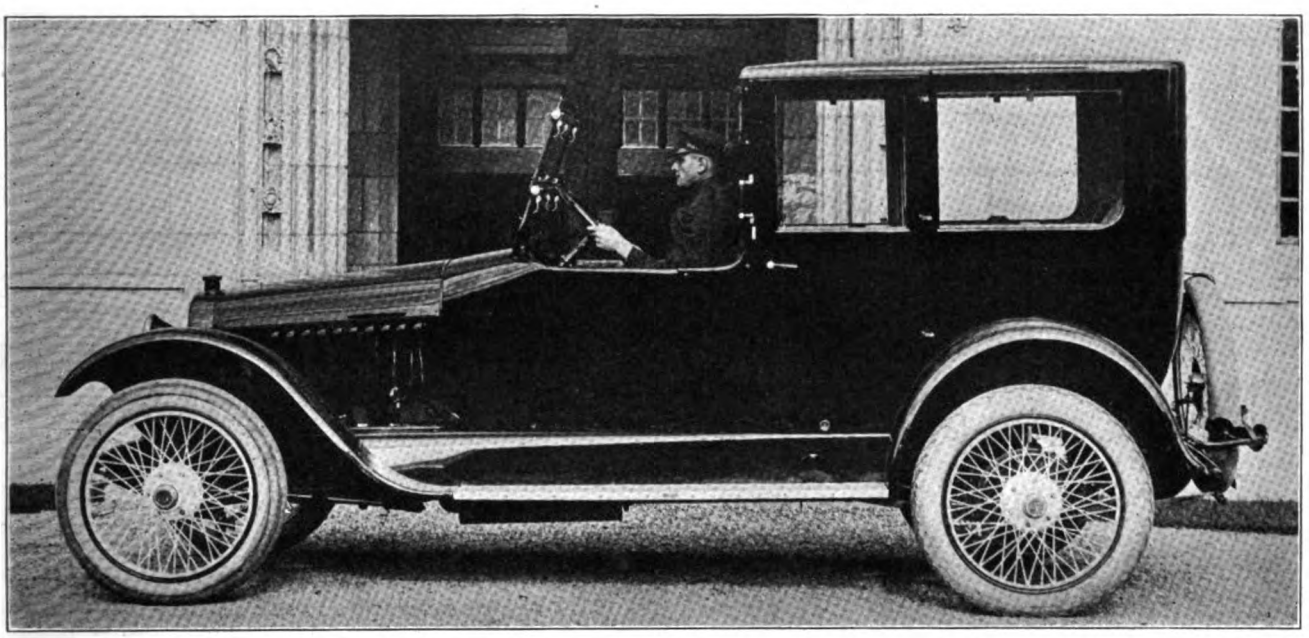
STANDARD STEEL CAR CO.
Pittsburgh, Pa.



STANDARD "8"

The Magneto Equipped Eight

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Chalmers Town Car—Equipped with the

Waltham Automobile Clock

Over 250,000 Now in Use as Standard Equipment

Especially built to keep accurate and dependable time, despite the shocks of motoring and the extremes of temperature.



Has two main springs, a red signal on the dial to tell you when it needs winding, and in appearance harmonizes splendidly with the luxurious cars that use it. The Waltham Clock is a part of the equipment of the following automobiles:

Anderson 6-40	Franklin	Owen-Magnetic
Apperson	Haynes	Packard
Brewster	Hal	Pierce-Arrow
Cadillac	Hudson Super-Six	Rauch & Lang
Chalmers	Jordan	Rolls-Royce
Cole	Kissel	Simplex
Crane	Locomobile	Stearns
Cunningham	Marmon	Studebaker
Detroit-Electric	Mercer	Willys-Overland
Doble	Murray	Winton
Fergus		

WALTHAM WATCH COMPANY,

WALTHAM, MASS.

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Strain, Stress &-

S-F ATLAS LUBRICANTS

SPECIALTIES

the Insides of Your Car

THE strain and stress of winter service tests the fitness of every automobile or truck.

If there is something wrong with your motor, you know it—there is a knock.

But—how about the many other parts, that have no audible means of warning you of impending danger, from strain and stress, and lack of attention?

Left unattended, the inevitable happens. Cars become rattly, grumbly—they stall. Service is below par. Repair charges mount up.

The service given by a car or truck depends on correct lubrication.

Scientific lubrication protects the motor—protects the bearings—protects every point where metal rubs against metal. Whether the temperature be at zero or in the nineties, scientific lubrication maintains at all times a protective film, essential to prevent wear. It absolutely keeps metal surfaces **apart.**

Scientific Lubricants for Scientific Lubrication

Where and What to use

Gearset	Gearese	Rear Axle Cap	Cupese
Wheel-Bearing	Cupese	Engine	Motul
Gear Clutch Lever	Cupese	Brake Connection	Cupese
Spring Lever and Bolt	Cupese	Universal	Cupese
Steering Arm and Knuckle	Cupese	Rear Axle and Differential	Gearese

SWAN AND FINCH COMPANY
NEW YORK

Quality Oil and Grease Products Since 1855

Now Ready—Learn the interesting and vital facts about the insides of your automobile or truck. Write for "The Insides of Your Car"—a valuable booklet just issued by the Engineering Department—free for the asking.

To Select accessory dealers and garages, an opportunity is open for a permanent, profitable connection with the Swan & Finch Company, for heavily advertised quality automobile lubricants. Write for details. S-F Automobile Div.

For Motor Cars and Boats

GEARESE — A correct transmission and differential lubricant. It insures a silent, smooth-running car, by preventing worn and noisy gears. It follows the gears continuously, leaving no spots where metal can rub against metal. It is unaffected by temperature. It lubricates instantly and constantly.

CUPESE — A high quality cup grease for all machinery requirements. It adheres to bearing surfaces, is tenuous and elastic, positively prevents metal-to-metal contact. Made by the exclusive S-F Acaloric Process, making Cupese non-volatile—does not liquefy or evaporate under intense heat. It does not cake at low temperature. It outlasts ordinary cup greases.

MOTUL — A superior quality oil for the lubrication of automobile motors. Made in a variety of densities to suit all requirements. It functions properly under intense heat—it leaves a minimum of carbon residue.

For General Use

CORUL — A liquid binder that meets the 11 requirements of perfect core casting (Automobile manufacturers send for details).

SLO-FLO — The super-lubricant; will not drip, climb nor spatter, withstands excessive heat and pressure.

AERUL — A practical high quality oil for aeroplane motors.

ASBESTESE — An asbestos and wool-mixed grease lubricant for car journals.

MARINUL — A world-known special oil, produced to meet the excessive stresses of marine service.

TEXTUL — An economical, high quality oil compound for wool and worsted manufacture.

TALESE —An economical, practical drop-forge die-swabbing grease compound.

EXESE — The 600 deg. F. Lubricant—for oven gears, bloom cars—calendar rolls, automatic stokers—or lubrication under excessive heat conditions anywhere.

VESUVESE —A waterproof lubricant for exposed gears—for cable dressing.

LARCUL — A practical, economical metal-cutting lubricant.

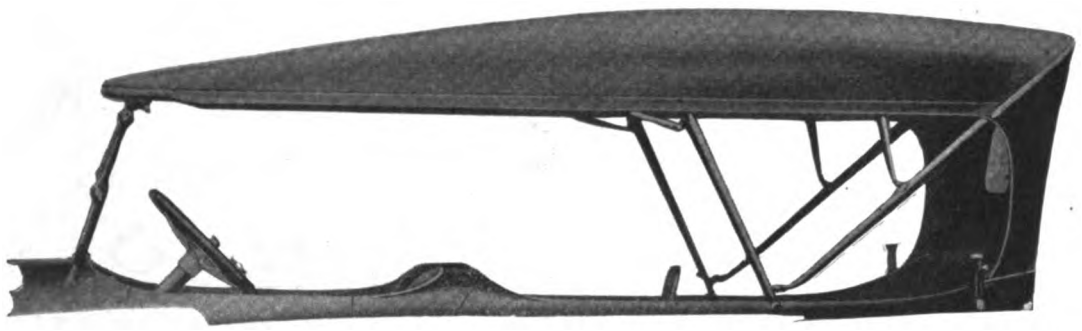
SCIENTIFIC LUBRICANTS for SCIENTIFIC LUBRICATION

When writing advertisers please mention Motor World—It identifies you

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A Dridek Top Does Help to Sell Cars

Dridek a Big Help to Dealers Right Now

Next spring is going to see a much greater business in **used cars.** Dealers who recognize this **now** and **prepare for it** are wise. They are going to get the "jump" on the other fellows.

The **best looking** used cars sell best; cars with good looking tops and high grade, rich looking upholstery.

We can help you tremendously along these lines. We have just the materials best suited to your needs, and our prices and terms will help you make this business pay.

Write for price list and samples.

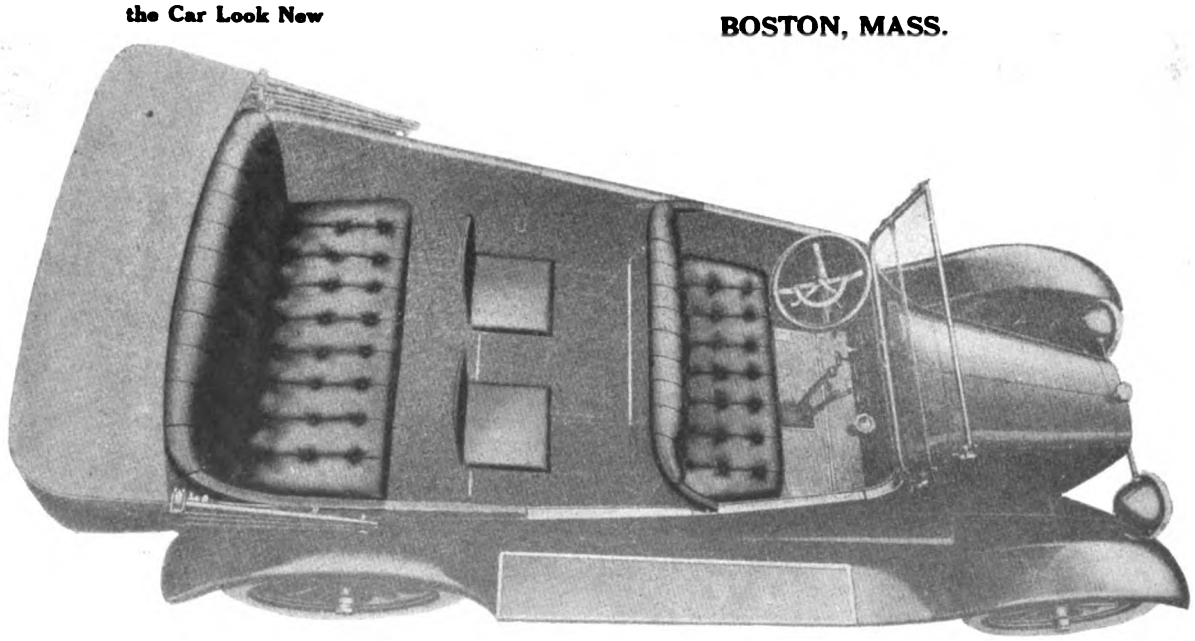
TRADE DRIDEK MARK REG.

The Most Remarkable Top Material Yet Produced

L. J. MUTTY COMPANY

BOSTON, MASS.

Dridek Upholstery Makes the Car Look New

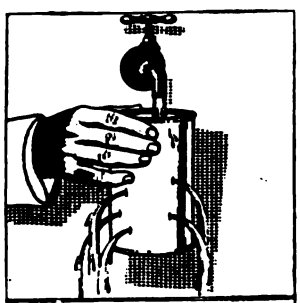


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This test has convinced thousands. Try it yourself.



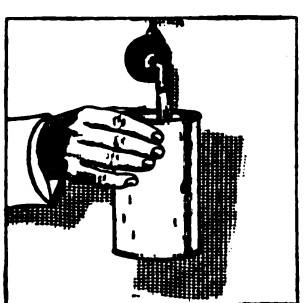
Take ordinary tin can. Punch 6 or 8 holes in it.



Pour water into can. It leaks freely.



Pour "X" Liquid into the water in the can.



Notice how quickly leaks have stopped!

$3,840,000 saved last year by car owners of this country!

They used "X" Radiator Liquid—a scientific process of repairing leaks without metal or fire. "X" prevents future leaks. Abolishes rust. Eliminates scale. Improves cooling. Thousands of motorists now use "X" Liquid regularly.

NO part of the motor car is more neglected than the cooling system. In spite of the fact that sooner or later *every* radiator leaks, no *scientific thought* up to now has been given to the problem of *quick, permanent, economical* repairs.

Heretofore a leak has meant dangerous drugging of the cooling system with powders, cements, glues, or other "dopes"—or repair bills of $15 to $25 *every time the radiator leaked.*

"X" repairs leaks in ten minutes!

Today thousands of car owners have found in "X" Radiator Liquid the *final answer* to this problem. "X" is the first *scientific product* for the repair of leaks in the radiator, pump, connections, motor head gasket and water jacket of a motor car.

You simply pour "X" into the radiator. It instantly combines with the water and circulates throughout the cooling system. Whenever "X", in solution with water, flows through a leak, the action of the oxygen in the air immediately changes it to a *metallic solid,* forming a permanent repair *right in the hole.*

"X" Liquid is *not* a radiator compound. It will not gum or clog any part of the cooling system.

Makes Radiators Rustproof and Scaleproof!

It is a remarkable fact that in addition to sealing leaks, "X" Radiator Liquid neutralizes the corrosive elements in water. It prevents the metal from rusting. It prevents scale forming on the metal walls. "X" keeps the cooling system clean and bright and the water passageways free and clear.

Beware of imitations! Don't put anything into your car that you're not sure about.

Large Size Can - - - $1.50
Does a $25 repair job!

Ford Size - - - - - - 75c
Does a $15 repair job!

"X" LABORATORIES
630 Washington Street, Boston, Mass.

Factory Representatives: Gray-Heath Co., Chicago
"X" Laboratories, 433-435 Rialto Building, San Francisco
Asch & Co., New York Sanford Bros., Chattanooga, Tenn.

Distributors for Canada:
Canadian "X" Laboratories, Wilkersville, Ontario

"X" RADIATOR LIQUID

TRADE MARK

DEALERS! Get this EXTRA PROFIT Assortment

Special Offer to Dealers



Display Stand and $1.50 Can FREE!



"X" Liquid works in alcohol or other anti-freeze solution. You can sell a good many cans during the winter months. Keep "X" in stock. Every motorist that walks into your store should walk out with a can of "X".

$1.50 in EXTRA PROFIT

The special assortment of nineteen cans of "X" includes twelve 75-cent cans and six $1.50 cans. Also one $1.50 CAN FREE. Assortment costs you $12—sells for $19.50. Selling literature, posters, etc., included in each assortment.

Ask Your Jobber, or Write Direct Today

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PEER

The "Loafing" Range

TO PURR along in the consciousness of tremendous reserve force—

To be able to loaf smoothly behind retarded traffic and yet be able to dash ahead the instant there is an opening—smoothly—without hesitation—and quickly reach any permissible city speed—

That is the charm of the Peerless Eight in its "loafing" range.

To have in reserve rugged resistless power *at no expense until you use it*—that is the economy of the Two-Power-Range Peerless Eight.

For in its "loafing" range the Peerless is on half rations—consuming fuel so sparingly as to shame many a lesser powered six, even many a four.

Here is eighty horsepower which you can use with true economy in every-day driving—yet eighty horsepower which you can use with full effect when you need or desire it.

In Two Whole Years No Unsold Peerless

IN ITS second year, just ended, the Two-Power Range Eight, in spite of doubled production, again outsold the output of the huge Peerless factories.

Among the master cars of the day the Peerless Eight stands second to none in the respect and regard in which it is held by the motor-wise public.

Continuing as it has, the Peerless traditions of super quality in every detail, mechanically and artistically, this successor of a long line of master cars has out-performed them all.

With its two separate and distinct power ranges the Peerless runs the whole gamut of motor car performance.

It yields nothing to those master cars produced with the sole idea of realizing the ultra soft smooth performance so prized in ordinary, everyday driving.

Yet it has nothing to fear from those other cars of exceptional distinction which sacrifice the gentler virtues for resistless power and speed.

And it naturally out-performs at all points those cars of class whose sponsors have realized their ideal of the best compromise between the gentler and the more rugged virtues.

The Peerless dealer's three big advantages are demonstrable economical, superior performance, conceded super-quality and the lowest price among recognized master cars of the day.

The Peerless Motor Car Company, Cleveland, Ohio

Peerless
TWO POWER RANGE
Eight

Seven Passenger Touring
$2340
Roadster $2340
Sporting Roadster $2490
Coupe $2850 Sedan $2990
Limousine $3690
All prices f. o. b. Cleveland
Subject to change without notice

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LESS

New Two Power Ranger Better Than Ever

IN TWO years of steady, uninterrupted, full capacity production during which the justly renowned Peerless engineering department has had the performance of thousands of these cars under constant critical observation, many mechanical and artistic improvements have been effected.

The unprecedented range of performance attained by the Two-Power-Range Eight has been measurably extended in both directions.

It is a smoother, more finished performer in its "loafing" range.

It is faster than ever, even more powerful in its "sporting" range.

It is notable among the cars of class.

From the standpoint of performance it stands today, more truly than ever, Peerless—all that the name implies.

And from the standpoint of low cost it is likewise without a peer in its class.

Eighty horsepower is not operated at so little expense in any other car.

And steady production in large volume, with exceptional resources and facilities, has enabled us to attain and maintain a price level hundreds of dollars below any of the other master cars of the day.

We offer dealers definite advantages. Have you, as a dealer, definite advantages to offer the manufacturer? If so, let's discuss opportunities for mutually profitable business.

The Peerless Motor Car Company, Cleveland, Ohio

80 horsepower, eight-cylinder motor—entirely Peerless-Built

Wheelbase 125 inches

35 x 4½ Cord Tires

Peerless platform rear spring suspension

Touring Car—seven passenger capacity—divided front seats

Fully equipped

Peerless
TWO POWER RANGE
Eight

The "Sporting" Range

TO TAKE a new lease on life and climb on with renewed courage when you would expect her to falter at so long and steep a grade—

To speed faster and yet faster after you thought she had delivered her final spurt—

That is thoroughbred performance—the kind that the "sporting" range of power makes possible in the Peerless Two-Power-Range Eight.

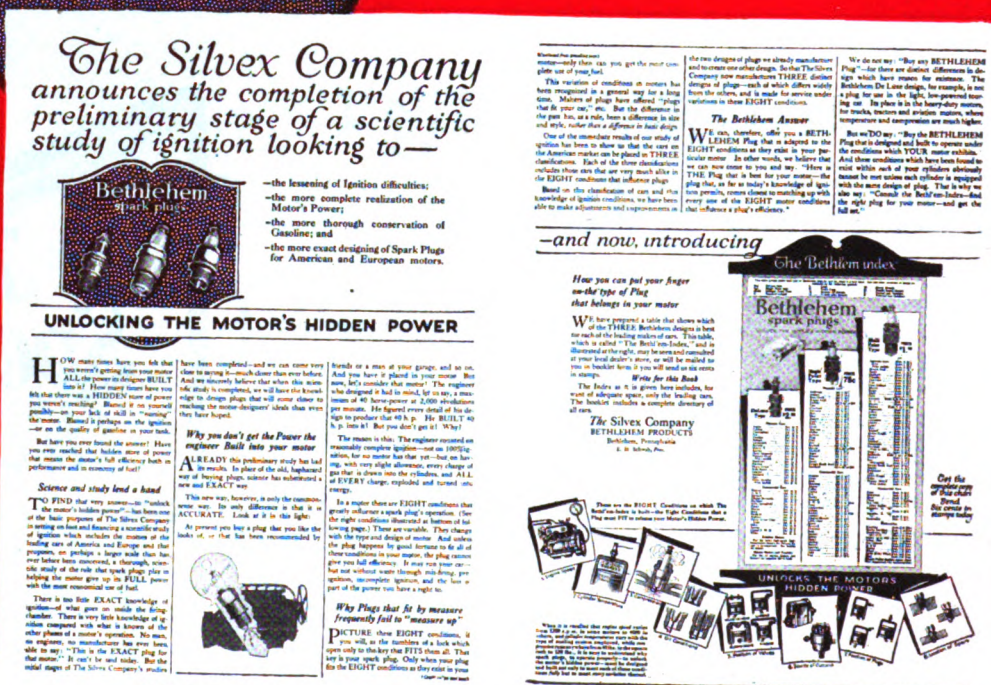
To reach her "sporting" range you have only to open her throttle wider to release her double poppets when a deep growl of brute power replaces the soft purr of her "loafing" range.

When you call upon the Peerless for feats of prowess of which few cars are capable, you get instant, willing, able response.

You need fear no contender no matter what "class" it may be able to show.

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Unlock the spark plug's extra profits



The Silvex Company announces the completion of the preliminary stage of a scientific study of ignition looking to—

—the lessening of Ignition difficulties;
—the more complete realization of the Motor's Power;
—the more thorough conservation of Gasoline; and
—the more exact designing of Spark Plugs for American and European motors.

UNLOCKING THE MOTOR'S HIDDEN POWER

HOW many times have you felt that you weren't getting from your motor ALL the power its designers BUILT into it? How many times have you felt that there was a HIDDEN store of power you weren't reaching? Blamed it on yourself possibly—on your lack of skill in "running" the motor. Blamed it perhaps on the ignition—or on the quality of gasoline in your tank.

But have you ever found the answer? Have you ever reached that hidden store of power that means the motor's full efficiency both in performance and in economy of fuel?

Science and study lend a hand

TO FIND that very answer—to "unlock the motor's hidden power"—has been one of the basic purposes of The Silvex Company in setting on foot and financing a scientific study of ignition which includes the motors of the leading cars of America and Europe and that proposes, on perhaps a larger scale than has ever before been conceived, a thorough, scientific study of the role that spark plugs play in helping the motor give up its FULL power with the most economical use of fuel.

There is too little EXACT knowledge of ignition—of what goes on inside the firing chamber. There is very little knowledge of ignition compared with what is known of the other phases of a motor's operation. No man, no engineer, no manufacturer has ever been able to say: "This is the EXACT plug for that motor." It can't be said today. But the initial stages of The Silvex Company's studies have been completed—and we can come very close to saying it—much closer than ever before. And we sincerely believe that when this scientific study is completed, we will have the knowledge to design plugs that will come closer to reaching the motor-designers' ideals than even they have hoped.

Why you don't get the Power the engineer Built into your motor

ALREADY this preliminary study has led to results. In place of the old, haphazard way of buying plugs, science has substituted a new and EXACT way.

This new way, however, is only the common-sense way. Its only difference is that it is ACCURATE. Look at it in this light:

At present you buy a plug that you like the looks of, or that has been recommended by friends or a man at your garage, and so on. And you have it placed in your motor. But now, let's consider that motor! The engineer who designed it had in mind, let us say, a maximum of 40 horse-power at 2,000 revolutions per minute. He figured every detail of his design to produce that 40 h.p. He BUILT 40 h.p. into it! But you don't get it! Why!

The reason is this: The engineer counted on reasonably complete ignition—not on 100% ignition, for no motor has that yet—but on having, with very slight allowance, every charge of gas that is drawn into the cylinders, and ALL of EVERY charge, exploded and turned into energy.

In a motor there are EIGHT conditions that greatly influence a spark plug's operation. (See the eight conditions illustrated at bottom of following page.) These are variable. They change with the type and design of motor. And unless the plug happens by good fortune to fit all of these conditions in your motor, the plug cannot give you full efficiency. It may run your car—but not without waste through mis-firing, pre-ignition, incomplete ignition, and the loss of part of the power you have a right to.

Why Plugs that fit by measure frequently fail to "measure up"

PICTURE these EIGHT conditions, if you will, as the numbers of a lock which open only to the key that FITS them all. That key is your spark plug. Only when your plug fits the EIGHT conditions as they exist in your motor—and the two designs of plugs we already manufacture and to create one other design. So that The Silvex Company now manufactures THREE distinct designs of plugs—each of which differs widely from the others, and is made for service under variations in these EIGHT conditions.

The Bethlehem Answer

WE can, therefore, offer you a BETHLEHEM Plug that is adapted to the EIGHT conditions as they exist in your particular motor. In other words, we believe that we can now come to you and say: "Here is THE Plug that is best for your motor—the plug that, as far as today's knowledge of ignition permits, comes closest to matching up with every one of the EIGHT motor conditions that influence a plug's efficiency."

We do not say: "Buy any BETHLEHEM Plug"—for there are distinct differences in design which have reason for existence. The Bethlehem De Luxe design, for example, is not a plug for use in the light, low-powered touring car. Its place is in the heavy-duty motors, for trucks, tractors and aviation motors, where temperature and compression are much higher.

But we DO say: "Buy the BETHLEHEM Plug that is designed and built to operate under the conditions which YOUR motor exhibits. And those conditions which have been found to exist within each of your cylinders obviously because by test unless each cylinder is equipped with the same design of plug. That is why we also say: "Consult the Bethlehem-Index—find the right plug for your motor—and get the full use."

—and now, introducing

The Bethlehem Index

How you can put your finger on the type of Plug that belongs in your motor

WE have prepared a table that shows which of the THREE Bethlehem designs is best for each of the leading makes of cars. This table, which is called "The Bethlehem-Index," and is illustrated at the right, may be seen and consulted at your local dealer's store, or will be mailed to you in booklet form if you will send us six cents in stamps.

Write for this Book

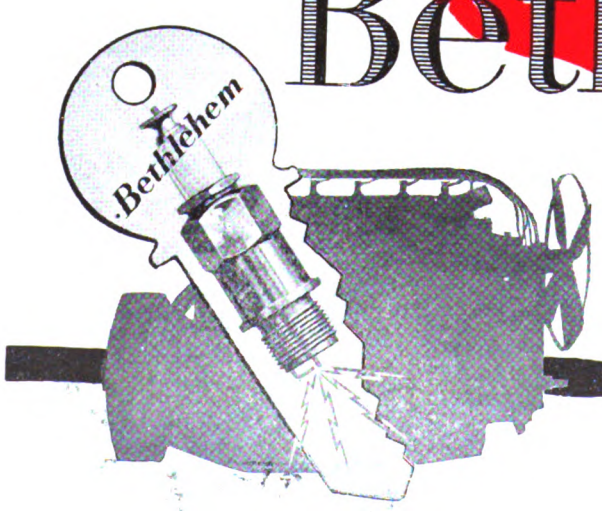
The Index as it is given here includes, for want of adequate space, only the leading cars. The booklet includes a complete directory of all cars.

The Silvex Company
BETHLEHEM PRODUCTS
Bethlehem, Pennsylvania

Get the Bethlehem-Index Book. Send for one or more today.

This is a photo-reduction of the two full pages in Collier's, Jan. 5th issue, that will place the Silvex message of a new and scientific method of spark plug selection before motorists at Show Time.

Bethlehem



Unlock the

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—in presenting the Silvex Consumer Advertising Campaign for 1918, we wish

to emphasize the important service rendered the car owner by the Bethl'em-Index — not only as it affects his selection of the proper size and style of spark plug, but as it influences his motor's performance *through the selection of a spark plug designed, built and basically right for the TYPE of motor he drives.*

This, we believe, is the first time that any manufacturer has developed a *definite* method of spark plug selection, based on a scientific study of the varying conditions within each type of gasoline motor as a substitute for the present, almost universal, haphazard way of buying any plug that fits the hole in the top of cylinder.

With the advances in the design, manufacture and marketing of Bethlehem Spark Plugs to be discussed later in these pages, the trade will find open to them new avenues of profit.

President

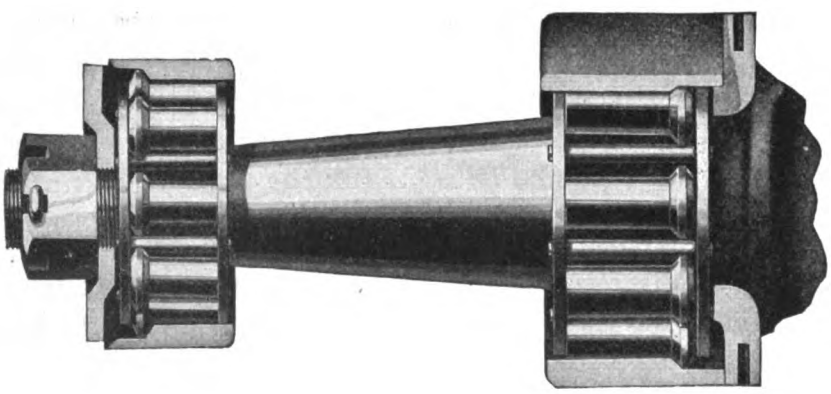
The Silvex Company
Bethlehem Products
Bethlehem, Pa.

Spark Plugs

Motor's Hidden Power

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BOWER SAVES POWER



Withstanding the Extra Strain

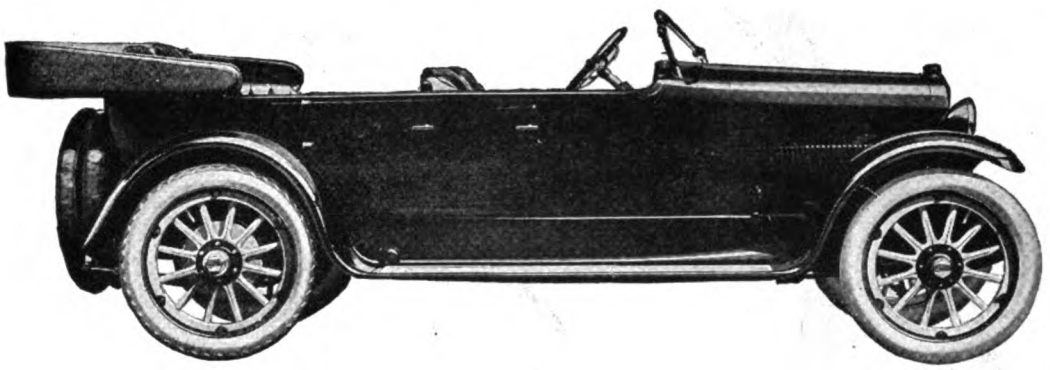
The front wheel bearings of a pleasure car or motor truck have two distinct thrusts to sustain. First, the downward thrust from the load; second, the side thrust that arises from turns and from the jolts and shocks of rough roads.

Bower Bearings are scientifically designed with a separate surface for each thrust. The downward pressure or "radial thrust" is met by the straight line contact of the roll and raceway, while the flanged head on the roll takes care of the side pressure or "end thrust."

BOWER
ROLLER BEARING CO.
Detroit Michigan

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CASE SIX



Three Fine Models

The New Case Offering

EACH is the latest creation—each a pattern to set new standards. Such are the New Case Sixes—in a Touring Car, a Sport Model, a Sedan. Each combines beauty and mechanical excellence. Each typifies new-day ways of manufacture. Each embodies the Case idea of including all the wanted features. An expert has wisely named this the "All-Feature" Car.

The New Case Six is our latest triumph. Case Engineers have surpassed all previous efforts. The trade confirms it. And the public confirms it.

This New Case Six is the best, the finest, the handsomest car we ever built. In dozens of ways, experience has directed our designers and builders. This is a speedier, more powerful car. It is easier to drive, more comfortable to ride in. It has grace and beauty. It has appointments rarely found in cars of equal price. We offer the open models of this new car for $1875. Men say they would bring more. The brisk demand indicates wide appreciation.

To a few dealers who command a clientele of motor-wise buyers, we have an attractive proposition to offer. *If you are interested, please advise.*

Family Model, a 7-Passenger Touring Car, color dark blue, $1875; Sport Model for four people, color periscope green, $1875; All-Seasons Model, Springfield Type, for 7 or 5 people, color dark blue, $2375.

J. I. CASE T. M. CO., INC., 208 Liberty St., Racine, Wis.

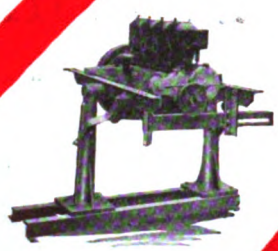
(*Founded 1842*)

New Case Six in three models will be exhibited at the Chicago Show

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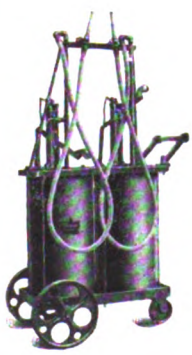
Big Contest At Both Shows

GARAGE & SHOP
Manley
EQUIPMENT









Manley Machines have been proven everywhere as being real wonder - workers for garage owners. We are exhibiting at both the New York and Chicago Shows. If you attend one of the Shows this season you will want to see this great line of time and money savers.

When you visit our exhibit we will provide you with the necessary blanks to give you a chance on the

Manley Equipment Given Away FREE

We will give away a Manley Press, a Manley Portable Crane, a Manley Oil Service and a Manley Engine Stand, as prizes at each Show in a contest which we will conduct.

You may be the lucky contestant, so be sure to see our exhibit and get the necessary information to give you a chance to win any or all of the machines that would prove most useful to you in your shop.

New York Show Exhibit located in Fourth Floor Space D-198

Chicago Show Exhibit located in the Coliseum Basement 10-D

This contest is open to all garage and repair men who visit our exhibit and other garage and repair men upon request. Be sure and look us up because you may win some of these prizes.

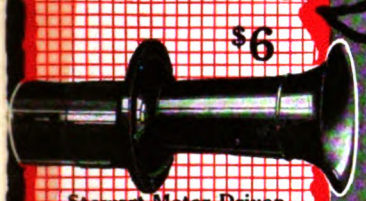
United Engine & Mfg. Co.
Hanover, Penna.

Four Manley Machines to Winners At Each Show

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Stewart PRODUCTS





$6

Stewart Motor Driven Warning Signal
Hand Operated Type $3.50



$10

Stewart Vacuum System



Stewart V-Ray Searchlight $5



$1

Stewart V-Ray Spark Plug

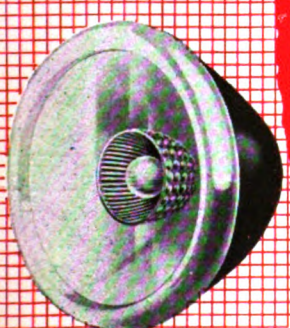
Progressive Dealers Know It Pays to Sell Leaders Only

LIVE dealers everywhere—men who do a big business and are making big money—know by experience that it pays to sell *Leaders Only*. They stock, sell and feature Stewart Products. The wide demand for Stewart Products is extremely significant to the wise dealer. It points out to him the unmistakable trend of public opinion—the tremendous demand for the best known and most widely advertised automobile accessories on the market.

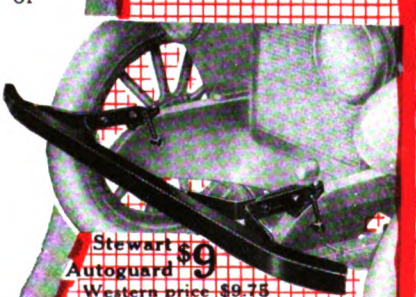
The dealer who has achieved really big success does not waste his time, energy and money in trying to "put across" unknown accessories. He banks on a steady, consistent "turnover." He handles the one established line—the one that is universally accepted as a standard. He carries a complete stock of Stewart Products.

Determine right now to sell nothing but Leaders for 1918. Concentrate on, "boost", feature and sell Stewart Products—the fastest-selling and easiest-to-sell of all automobile accessories.

Stewart-Warner Speedometer Cor'n
Chicago U. S. A.



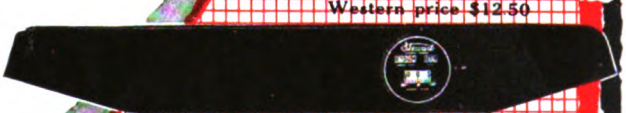
Stewart Lens per pair $2



Stewart Autoguard $9
Western price $9.75
Ford Model $7.50
Western price $8.25
Ford Rear Autoguard Tire Carrier $11.50
Western price $12.50



$25 Stewart Speedometer



Stewart Speedometer and Instrument Board for Fords $12
Western price $12.50

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Is the car you will sell this year Gurney-equipped? If so, the manufacturer has put Quality ahead of Price

GURNEY BALL BEARING CO.
CONRAD PATENT LICENSEE
JAMESTOWN, NEW YORK

When writing advertisers please mention Motor World—It identifies you

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Maximum Grip In Winter Driving

We know that most people give little thought and attention to treads.

They generally assume that tire treads are the same in their non-skid efficiency.

This is not true. Republic Staggard Tread is different—no matter how much alike others may be.

The Staggard Studs on Republic Tires are the result of real scientific study.

The design of the individual studs, their dimensions and their placing give *maximum grip* with *minimum friction*.

The studs allow the tire to roll practically without friction. No sharp corners meet the road bed.

But these same studs fight against all side movements of the tire and grip the road tenaciously.

In winter driving the anti-skid strength of Republic Tires is especially appreciated.

Republics are made by the Prōdium Process. They last longer and resist wear to a remarkable degree.

Republic Black-Line Red Inner Tubes have a reputation for freedom from trouble

The Republic Rubber Corporation
Youngstown, Ohio

Originator of the First Effective Rubber Non-Skid Tire
Republic Staggard Tread

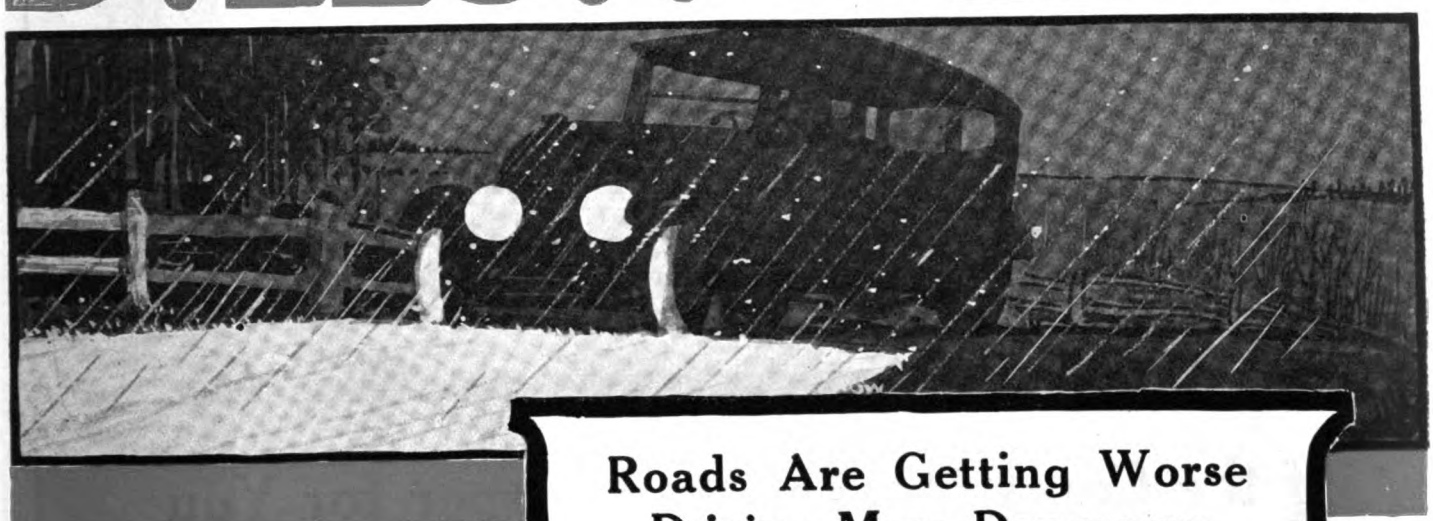
Republic
STAGGARD
PAT. SEP. 15-22-1908
Tread

Maximum Grip with Minimum Friction

REPUBLIC TIRES

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DILLON MULTI VISION LENS



Roads Are Getting Worse Driving More Dangerous

Sell the Dillon

Here is the lens that science built. Every angle, every curve, every detail has been designed and developed with scientific precision. Hence, the Dillon spells safety. Safety at night, at last, for driver and oncoming motorist alike.

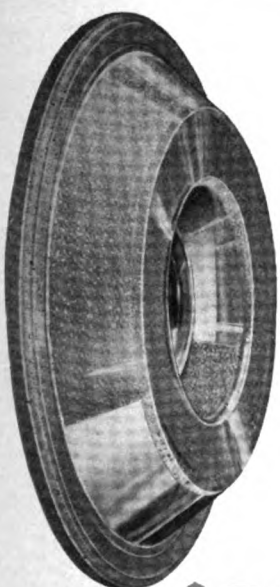
The Dillon is the only lens on the market that successfully eliminates glare without decreasing your range of vision. It actually gives you TWICE THE LIGHTED AREA.

A Square Path of Light—SAFE

The narrow, triangular shaft of light of the average lens is dangerous and does not provide illumination for that part of the road that should be lighted. The Dillon, with its distinctive square path of light, affords illumination for over 500 feet ahead and over 25 feet on either side.

Extensive Advertising Campaign Attractive Selling Helps

The Dillon Multi-Vision Lens is now being nationally advertised in the country's most influential publications. In addition, every advertisement is made **yours** because of our unique trade character, Otto Deeler. We also **help** you by giving you many valuable selling helps FREE. Write at once.



Easy to Sell
Easy to Handle

$3.50 Per Pair

Any Size—Same Price Anywhere

DILLON LENS & MFG. CO.

WHEELING, W. VA.

To the Trade—Write Our Distributors for Liberal Terms

Dealers and Jobbers:

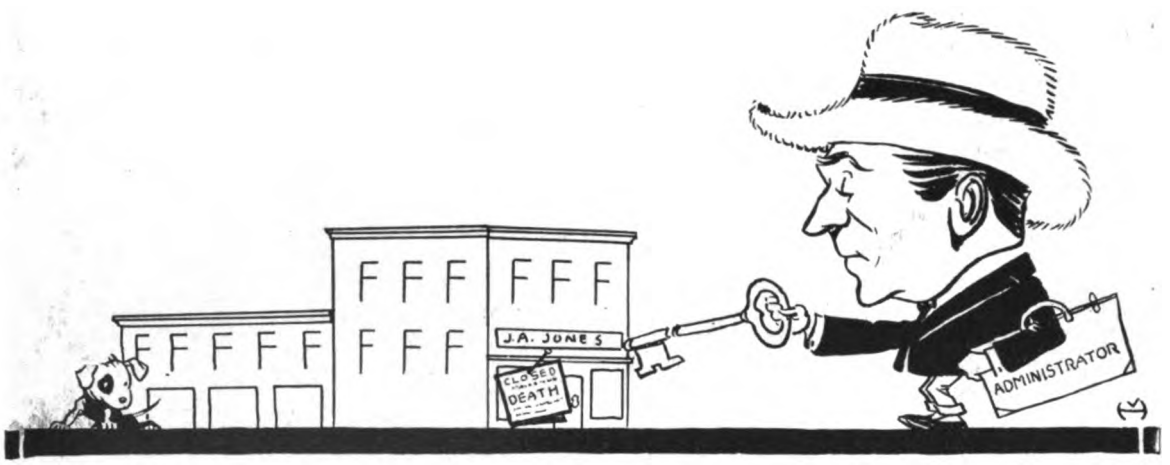
An exceptional proposition is offered the trade, as well as valuable selling helps. Write today for full information.

NATIONAL DISTRIBUTING BUREAU, Inc.

Sole Distributors NDB **for the Dillon Lens**

241 Oliver Building, Pittsburgh, Pa.

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If the Court Hires a Bookkeeper for You He'll Get a Good One

Some men don't know much about their accounts as long as they live.

They are the worst enemies of their widows and children.

What they owned, what their estate owes and what is owing to it, must be found out by court proceedings.

That means costs; fees to expert accountants that the dead man couldn't have afforded to hire, but who must be paid from his estate.

It's poor business—and easily avoided.

Watch your records. See that they are complete. A bookkeeper isn't an expense, but a sound investment.

It is the medium-sized business that can least stand shrinkage when death or disaster comes.

Protect your loved ones by clearly understood records

Send for your copy of our Booklet—by an expert—on "How to Run a Garage."
Manufacturers, Jobbers and their Salesmen are anxious to co-operate with you. Ask them for ideas.

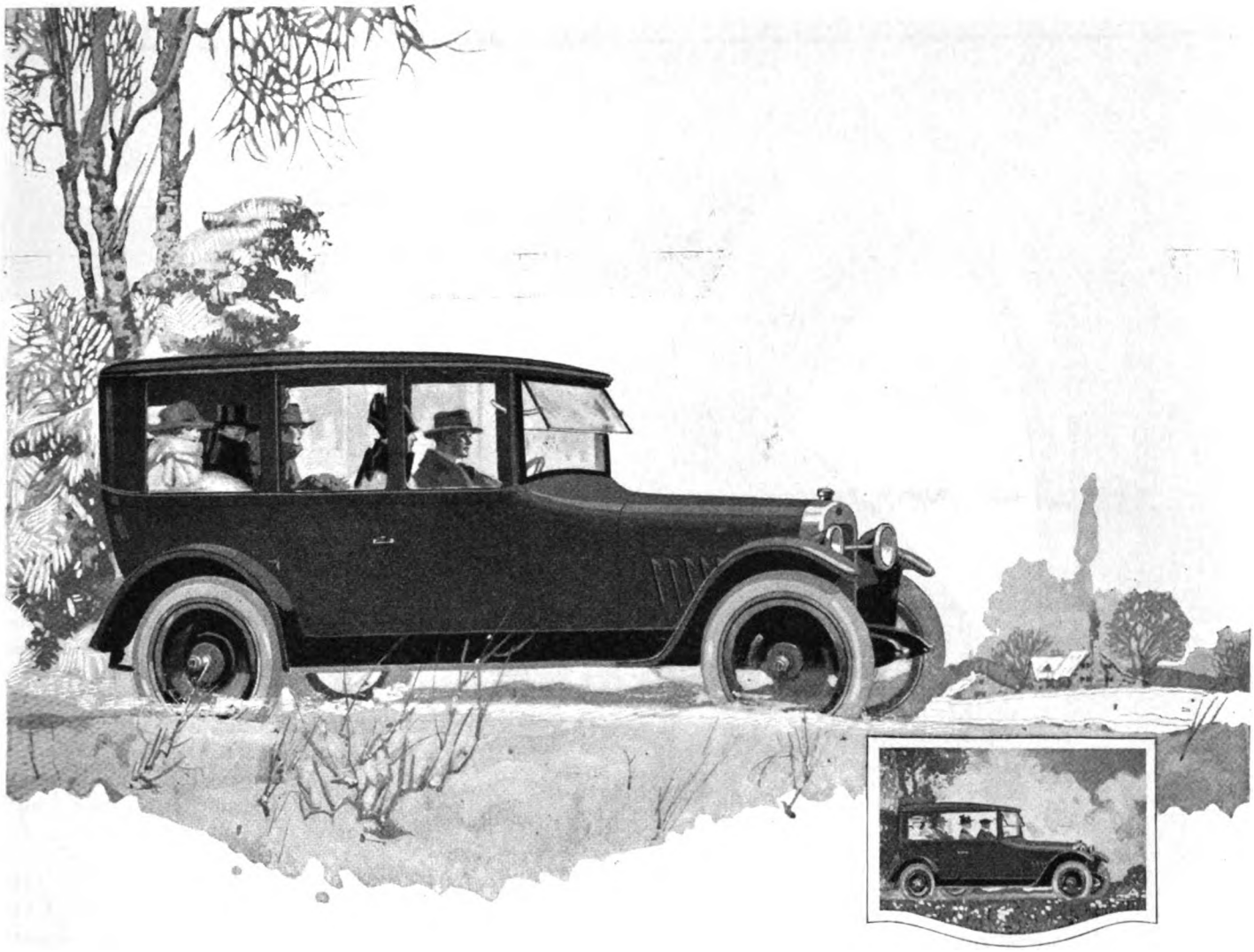
THE NATIONAL ASSN OF AUTOMOBILE ACCESSORY JOBBERS MEMBER

National Association of Automobile Accessory Jobbers

WM. WEBSTER, Commissioner

CITY HALL SQUARE BLDG. CHICAGO, ILL.

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THIS CAR MEETS TODAY'S DEMAND

IN mild weather the side windows and standards of the Oakland Sensible Six Sedan (Unit Body) may be lowered into the body-wall of the car or entirely taken out if desired.

Touring Car	*$ 990*
Roadster	*990*
Roadster Coupe	*1150*
Sedan	*1190*
Sedan (Unit Body)	*1490*
Coupe (Unit Body)	*1490*

F. O. B. Pontiac, Michigan

IN this new Oakland Sensible Six Sedan (Unit Body) the dealer offers a car that appeals strongly to families who today are earnestly supporting the government's thrift program.

To these citizen-motorists he presents at moderate first cost an automobile that yields a year 'round return on the investment and that is completely economical in operation.

Its splendid comfort and unlimited usefulness are enhanced by the Oakland established reputation for high power, stamina and easy riding.

The roomy two-door body, the individual forward seats, the broad windows, the fine upholstering distinguish this Oakland as a salesroom attraction of the first rank.

In this Sedan a new type of construction makes the roof extremely flexible, relieving the supports of strain, and by eliminating useless roof-weight reduces the chassis load and contributes to the spontaneous, smooth action of the 44 h. p. engine.

Always perfectly seasonable, it is always highly salable and affords the dealer an important means of booming dull months and, therefore, of putting his business on a solid all-year basis.

OAKLAND MOTOR CAR CO.
PONTIAC, MICHIGAN

OAKLAND SENSIBLE SIX

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The Chilled Rubber Process



THE GILLETTE FACTORY IS LITERALLY "BUILT AROUND A LABORATORY." The Laboratory was constructed and equipped for the special purpose of developing the best tire possible and especially the "Chilled Rubber Process" of tire manufacture. The whole plant was designed and constructed, and its administration is being conducted, with a view to the closest relationship between the technical and practical branches of tire building.

NO TIRE PLANT IN THE WORLD IS MORE COMPLETELY EQUIPPED. Every department is in charge of men of unusual skill, thoroughly trained in the "Chilled Rubber Process." Every single tire is a Master Tire; no variations in quality are permitted. The reputation of Gillette Tires is in every possible manner defended against even the slightest mistake in manufacture.

GILLETTE CORD TIRES are truly called the "Long Distance Champions."

Safety

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Gillette

The Lesson of the Show

In 1918 Business Will Be Different—But Bigger—Especially the Tire Business—Dealers Who Have Not Heretofore Handled Tires Will Carry Them—Get in This Business Right—Long Wearing Tires Will Be Demanded—And Your Business Will Be Safe and Permanent Under a Gillette Contract.

A Big, Busy Year Ahead —Especially in Tires

Every car—old or new—that can be pressed into service will be on the roads this year.

Transportation problems are multiplying, and while the factories may not break production records they will probably all be oversold. All used cars will be working—even the "old boys" of ancient vintage.

This is the lesson taught by the Big Show just held at New York. Business was helped by this Show, confidence restored. Those who met and talked there all felt the same way—that while "joy-riding" would be strictly under the ban, the movement of troops and supplies, and the active carrying on of necessary business, in view of the terrible strain on the railroads, was going to put in service every car with four wheels and capable of running.

It is easy to see what this means to the tire business. It means that *good* tires, long wearing tires, will be at a premium. It means that dealers are going to carry tires who have never handled them. It means that the far-seeing, fair-playing dealer, who carries a good, reliable tire and has a fair contract with a reliable Tire Company, is going to cash in on a big, permanent, *satisfying* business.

Gillette Tires will fill the bill exactly. Their long wearing ability is their most distinct characteristic. They are made of the most remarkable rubber yet produced. Every single one of them is good (barring absolute abuse) for more than its full guaranteed mileage.

And the Gillette Dealer Proposition gives just the guarantees a good, ambitious dealer requires.

If you are a Responsible, Progressive Dealer, and want to Get into this Big Business with the Very Best Chances for Yourself and Your Customers, Wire or Write Us at Once.

THE GILLETTE RUBBER COMPANY

Chicago Office
122 Michigan Ave.

General Sales Office: 1834 Broadway, New York

Factories
Eau Claire, Wis.

Tires

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A Guarantee of Quality

Every car owner who buys Texaco Motor Oil by the can, with the seal unbroken, spends his money with the assurance that he will get his money's worth.

The Texaco green can with the red star on the sides is a guarantee of quality—when the seal at the end of the spout is unbroken.

TEXACO MOTOR OIL

is a quality oil. It is sold on the basis of quality, not of price.

The lubrication of a modern, high speed automobile motor is too important a factor for the lubricant to be *bought* on any other basis.

Texaco Motor Oil lubricates perfectly. It reduces friction to a minimum. It stands up well in use, retains its original lubricating qualities, because it prevents the leakage of gasoline into the crank case. Due to certain basic qualities it cannot deposit a hard carbon crust. It is the oil for *results*.

When you buy motor oil buy Texaco. The best way, the safest way, to buy is in one or five gallon cans. You can identify Texaco by its clear, clean color.

THE TEXAS COMPANY

New York Chicago Houston

DISTRIBUTING OFFICES IN MOST CITIES

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Standford SRB
TRADE MARK REGISTERED

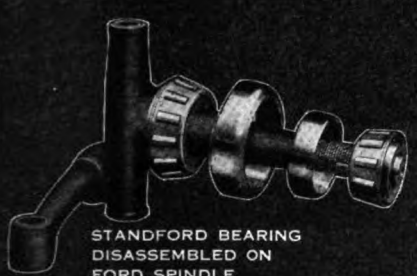
BEARINGS will outlast your car

Add this element of safety to your FORD and avoid future annoyance from broken bearings

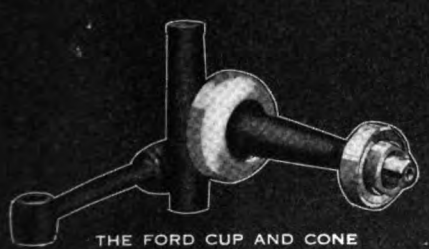


STANDFORD BEARING ASSEMBLED ON FORD SPINDLE

An IMPROVED TAPER BEARING for FORD Front wheels



STANDFORD BEARING DISASSEMBLED ON FORD SPINDLE



THE FORD CUP AND CONE BEARING ASSEMBLED ON FORD SPINDLE



THE FORD CUP AND CONE BEARING DISASSEMBLED ON FORD SPINDLE

This new member of the S R B Taper Roller Bearing family is a strictly high grade bearing in every particular of design, material and workmanship—and must not be confounded with shoddy substitutes. It is produced from the highest grade of Chrome Alloy Steel. It is made with the same care and precision as our regular S R B Taper Roller Bearing and will give the same high degree of service and satisfaction.

You can make the change in 15 minutes

Anyone, with the aid of a wrench, can remove the original cup and cone bearings from the front wheels of a *Ford* car and replace them with these wear-resisting SRB "Standford" Taper Roller Bearings. No change is necessary in the *Ford* construction.

Greatly enlarged factory facilities make it possible for us to promise prompt delivery on all specifications and orders for S R B "Standford" Bearings.

S R B is recognized everywhere as the insignia of one of the first and largest bearing manufacturers in the world, and as such wherever it appears on a bearing it is a guarantee of high quality.

Prices and other information on request to Service-Sales Department

STANDARD ROLLER BEARING COMPANY
PHILADELPHIA, PA., U. S. A.

Makers of S R B Annular Ball Bearings, Taper Roller Bearings, Steel Balls and *Rudge-Whitworth* Wire Wheels

Sales Offices:

Detroit, Mich., 936 Woodward Ave. *Indianapolis, Ind.*, 822 Hume-Mansur Bldg.
Chicago, Ill., 2206 So. Michigan Ave. *Boston, Mass.*, 163 Massachusetts Ave.
Cleveland, Ohio, 2062 Euclid Ave.

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Over 500,000 Motorists Use It

The fact that over 500,000 motorists are now using the SHALER 5-Minute Vulcanizer is convincing proof of its ever-increasing popularity. Every motorist is a prospect for one of these handy tube vulcanizers—it should be in every car-owner's tool kit—for use anywhere—on the road or in the garage.

On account of the tremendous cost of new tires and repairing, the *demand* for the SHALER 5-Minute Vulcanizer is greater today than ever before.

Regular advertisements appear in the best national and motor magazines throughout the season—motorists are educated to recognize the SHALER and to demand it—to call for it by name.

Sell the SHALER 5-Minute Vulcanizer. Every sale of a 5-Minute Vulcanizer gives you a good profit. Besides, the big resale of patch-and-heat units furnishes you a continuous profit—it brings motorists to your place for SHALER supplies—and for other goods.

As soon as you start selling the SHALER 5-Minute Vulcanizer, new customers will quickly be noticeable—coming to your place for all sorts of supplies and accessories. As a stimulus to enlarge your business and increase your sales—the SHALER 5-Minute Vulcanizer cannot be equalled.

All Jobbers Sell It

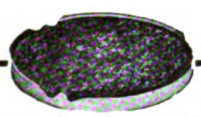
Practically any jobber in the United States can supply you with SHALER 5-Minute Vulcanizers. Our large catalog describes the complete line of SHALER Vulcanizers for motorists' use—also complete equipment for garages and tire repair shops. Mailed free on request.

SHALER

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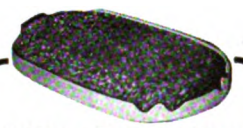
A Match Is All You Need!
Mends Tubes In 5 Minutes





6 Round Patch-and-Heat Units for Punctures
Additional Supply 75c per dozen

Complete Outfit $1.50
Includes
Six Round and Six Oblong Patch and Heat Units



6 Oblong Patch-and-Heat Units for Cuts and Tears
Additional Supply 75c per dozen

The Patented Heat Unit is a combustible disc, chemically treated to give the proper heat without flame or blaze. Works perfectly in any weather, and tubes cannot become overheated or undercured.

The Rubber Patch is of pure para rubber, fabric-backed. It is a unit with the heat disc. This fits over the puncture and the heat of the disc seals the cut with this new tough rubber.

The repair is a permanent one—takes only 5 minutes—and you don't even soil your hands! No gasoline—no cement or flame required. The operation of the SHALER 5-Minute Vulcanizer is entirely automatic—and it works without fail. Furnished with full instructions in neat box—compact enough to fit the motorists' tool kit.

Order From Your Jobber NOW

Don't delay! The enormous demand for these vulcanizers makes it necessary to place your order early if you want to be sure of prompt shipments. Order now or make a memo to ask your jobber's salesman about it.

C. A. Shaler Company, 403 Fourth St., Waupun, Wis.

Oldest and Largest Manufacturers of Vulcanizers

5 Minute Vulcanizer

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BRISCOE $725
THE CAR WITH THE HALF-MILLION DOLLAR MOTOR

WHY I PICKED THE WONDERFUL BRISCOE

by F. M. Leary. *Mgr. Sterling Motor Car Co., Indianapolis*

"Here in Indiana only the car that is 100% right can give true satisfaction. The Briscoe coincides exactly with my own personal idea of 100% perfect light car construction.

"The famous half-million dollar motor takes big hills like a Trojan—never falters. And 25 to 30 miles per gallon of gas are reported by Briscoe owners.

"Briscoe beauty—Briscoe power—Briscoe economy—and the many extras that come with the car make it the easiest car to sell. We find the Briscoe a cracker-jack money maker."

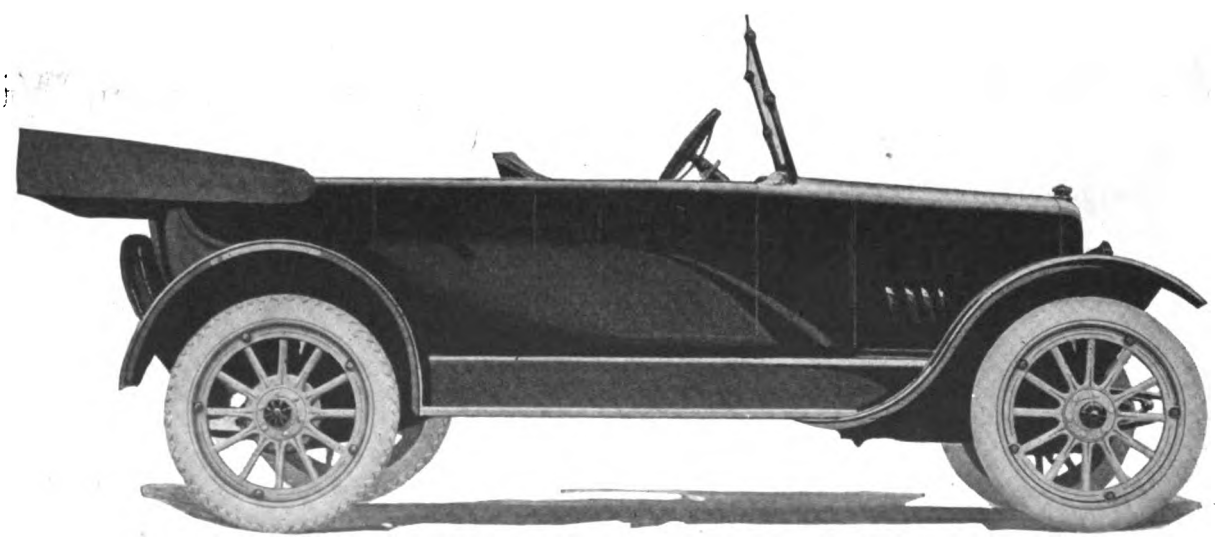
(Signed) F. M. LEARY, Manager,
Sterling Motor Car Co., Indianapolis Distributors.

You Can Have This Money-Maker

You can make as much money in your territory but you must act immediately. Write

BRISCOE MOTOR CORPORATION

Dept. 149 **JACKSON, MICHIGAN**



When writing advertisers please mention Motor World—It identifies you

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reputation, service and the Ford market

Concentrate on the Ford market with a necessity of real worth, and good business is assured.

A dependable, fool-proof starting and lighting system is needed on every Ford—the true spirit of conservation demands frequent starting.

Every Ford owner is a prospect for a Westinghouse Starting and Lighting System; all need quick, definite and economic starting; all need the safety and continuous service that only good lighting permits.

Westinghouse reputation makes it good business to sell that dependable make, when a Ford owner requires an efficient lighting and starting system.

Westinghouse reputation is enhanced by MP service, a combination you and your customers will appreciate when once you have experienced its full meaning.

W
WESTINGHOUSE ELECTRIC

Sell "THE ONE" starting and lighting system for Fords. The demand is there—so get in touch with your prospects now—but order your systems in advance.

Delivery dates, discounts and information gladly sent on application.

MP TRADE SERVICE

REPUTATION ——— SERVICE

MOTOR PARTS COMPANY

Manufacturers and Distributors *Sole Distributors for Westinghouse Ford Systems* Manufacturers and Distributors

816 North Broad Street, Philadelphia, Pa.

Boston ..... Springfield ..... New York ..... Buffalo

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A TIP *from* "JEM COE" The Traffic Cop



"JEM COE" *says* "*Sell Them Rear Bumpers —the Front Bumpers Will Sell Themselves*"

If you attend the Chicago Auto Show be sure to see the GEMCO exhibit.

"SIZE up any row of parked cars. See how few have Bumpers at the *rear*, where most bumps come from."

And right there JEM COE points out the big opportunity in the accessory field today. The market is tremendously *undersold* on *rear* bumpers.

GEMCO is going after that market—with powerful advertising in Saturday Evening Post, Literary Digest and other national publications.

Come with us. Get your share of this Bumper business. Much of it is *double-sale* business—GEMCO advertising is making it easy to sell *two* Bumpers to a customer.

GEMCO Bumpers are built on the correct End-Thrust Principle—a feature that appeals to the critical buyer. They come in Diamond and Channel Bars to fit all cars.

Stock them! They are going *big* this year!

Write, today, to your jobber or direct to

Gemco Mfg. Company

756 S. Pierce St. Milwaukee, Wis.

Gemco MILWAUKEE TRADE MARK

End-Thrust Bumpers



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6 reasons
Why you can make better profits with

RACINE
Country Road *and* Multi-Mile Cord TIRES

1 ***Proved quality*** of these Racine Rubber Company products makes friends with every motorist who uses them.

2 ***National advertising***—in The Saturday Evening Post—The Country Gentleman—leading farm papers, etc. will carry this quality message to every motorist in your locality.

3 ***Every selling co-operation***—is given to dealers selling this quality line. Complete assortment of helps furnished ***free.***

4 ***Immediate deliveries*** from Racine Rubber Company distributors. Top-notch tire men at all principal distributing points. Complete stock always on hand to meet your needs.

5 ***5000 Mile Guarantee***—covering the Country Road—and your customers can expect big dividends of extra mileage from each tire.

6 ***The Reputation of the Racine Rubber Company*** and Racine Rubber Company distributors, stands back of each dealer selling these quality tires. All the distributors who started with Racine Rubber Company at the beginning, are with us today, more enthusiastic than ever.



Important: Every genuine Racine Country Road and Multi-Mile Cord tire must bear the name

RACINE RUBBER COMPANY
RACINE, WIS.

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Careful Checking the Analysis of Raw Material — For Safety — *For Service*

These men, trained for rigid and careful testing of materials, safeguard you on the road. Every piece of material that goes into our products must come up to our special and drastic requirements. There can be no flaw—no "seconds"—no *good enough*. No imperfection can get by—every operation is checked by a rigid test. That is one reason why both

BROWN-LIPE TRANSMISSIONS

BROWN-LIPE-CHAPIN DIFFERENTIALS

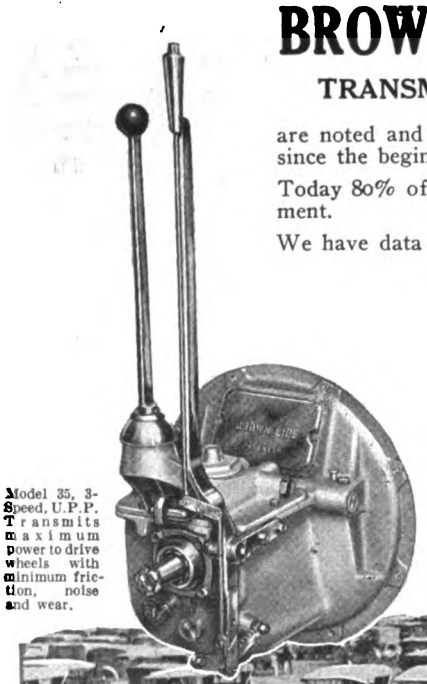
are noted and recognized for their quality, service day in and day out, and general superiority since the beginning of the automobile industry.

Today 80% of the pleasure car and truck manufacturers use either one or both as standard equipment.

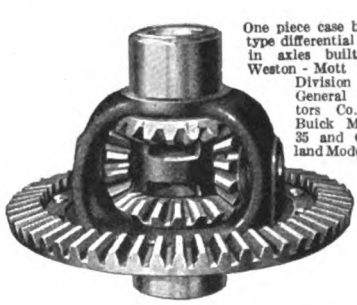
We have data of special interest to dealers and owners. Furnished on request.

BROWN-LIPE GEAR CO.
TRANSMISSIONS
BROWN-LIPE-CHAPIN CO.
DIFFERENTIALS
Syracuse, N. Y.

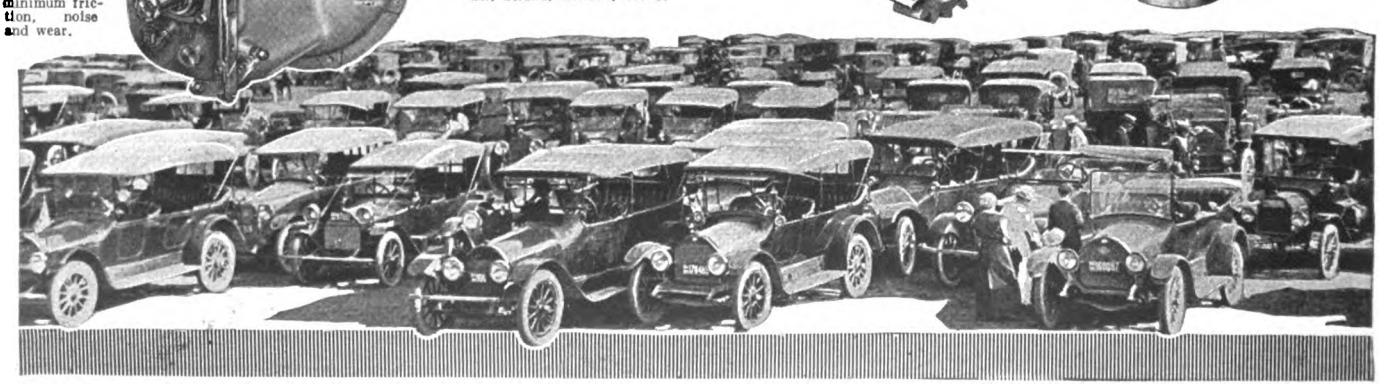
Representatives:
NEW YORK: Thos. J. Wetzel, 29 W. 42d St.
SAN FRANCISCO: A. H. Coates, 444 Market St.
FOREIGN AGENT: Benjamin Whittaker, 2 Norfolk St., Strand, London, W. C.



Model 35, 3-Speed, U.P.P. Transmits maximum power to drive wheels with minimum friction, noise and wear.



One piece case bevel type differential used in axles built by Weston-Mott Co. Division of General Motors Co. in Buick Model 35 and Oakland Model 34.



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At the New York Show
Space B 13

MOLINE KNIGHT

TOURING SEDAN

Everything Desirable In a Year 'Round Car—

Plus All the Exclusive Advantages of the Knight-Motor.

In appearance, style and comfort we sincerely believe that the Moline-Knight Touring Sedan ranks easily with the finest and handsomest closed coaches, including those of much greater cost.

One cardinal advantage sets this Sedan apart—its Knight-type motor, a motor so smooth, silent and vibrationless that the source of power is almost forgotten. No valves to grind—carbon actually improves it—the spherical combustion chamber gives all the added efficiency claimed for valve-in-head motors without the noisy and trouble-some valve mechanism.

This motor differentiates the Moline-Knight as the ideal Touring Sedan.

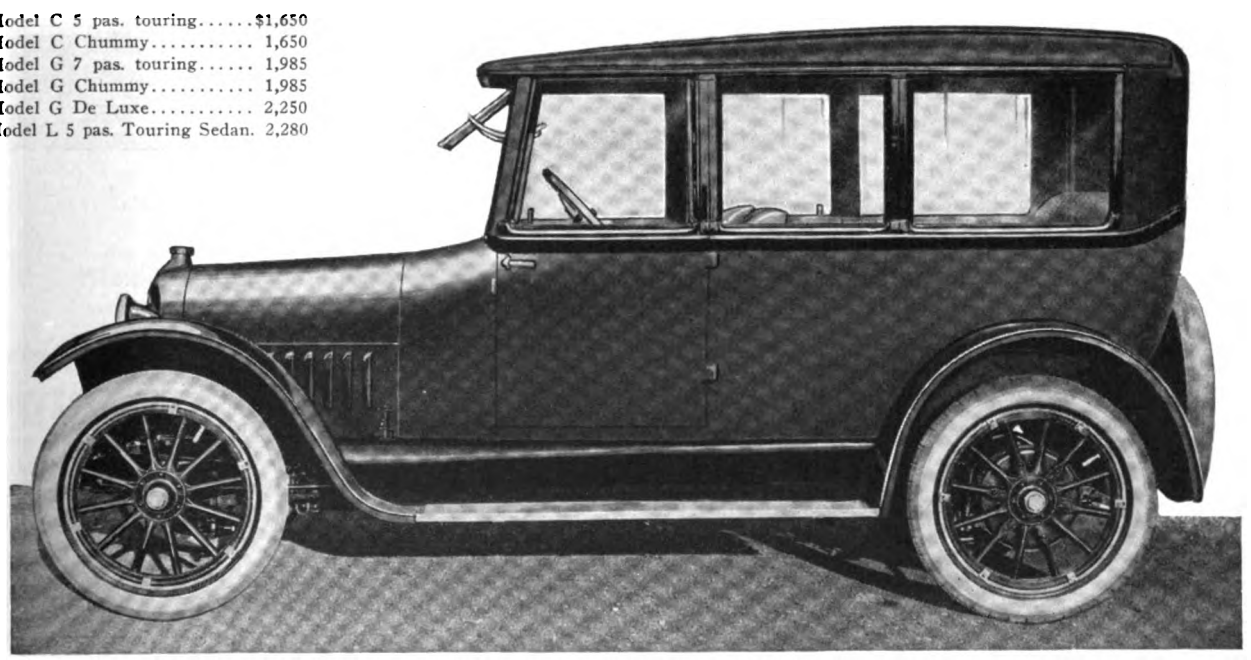
Send for catalog.

We have an unusually interesting proposition for a few additional distributors and dealers. See us at the Shows or write.

Root & Van Dervoort Engineering Co.
East Moline, Illinois

PRICES:

Model C 5 pas. touring	$1,650
Model C Chummy	1,650
Model G 7 pas. touring	1,985
Model G Chummy	1,985
Model G De Luxe	2,250
Model L 5 pas. Touring Sedan	2,280



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Unretouched Midnight Photograph by Fowler, Evanston, Ill.

The Perfect Light for Night Driving

It solves the *glare* problem, because it has no glare—absolutely none—but what is more important, it makes night driving *safe* and enjoyable—it obviates the need of dimmers, spotlights, auxiliary headlights and high candle power bulbs which drain the batteries and impair ignition.

You can now drive at night—just as safely—just as fast as in daytime—without constant fear of danger, without stopping and dimming your headlights to allow another car to pass. The SHALER Roadlighter lights the *entire* road—from fence to fence—with a bright, white, evenly distributed light.

The SHALER Roadlighter has been subjected to the most rigid tests by illuminating experts.

State, city and police officials have given this remarkable lens their approval—accident insurance companies endorse and recommend it.

We have tested it so thoroughly—that we absolutely guarantee every pair of SHALER Roadlighters.

SHALER ROADLIGHTER

Pierces the Glare of Approaching Headlights
Illuminates the Ditches
Accurate Focusing Unnecessary
Easy to Keep Clean

Shoots the Light Far Ahead
Legal Everywhere
Rays Penetrate Fog and Dust
Easy to Install

Limited Offer to Dealers Only

We want every automobile accessory dealer in the United States to try out a pair of SHALER Roadlighters on his own car—AT OUR EXPENSE.

Mail the coupon for full particulars regarding this big offer. There is no obligation—don't put it off—clip and mail coupon *now*.

C. A. Shaler Company
9405 Fourth St. Waupun, Wis.

Dealers' Offer Coupon

C. A. SHALER CO., 9405 Fourth St., Waupun, Wis.

Gentlemen: Send me full particulars about your offer to let dealers try out a pair of SHALER Roadlighters at your expense. This obligates me in no way.

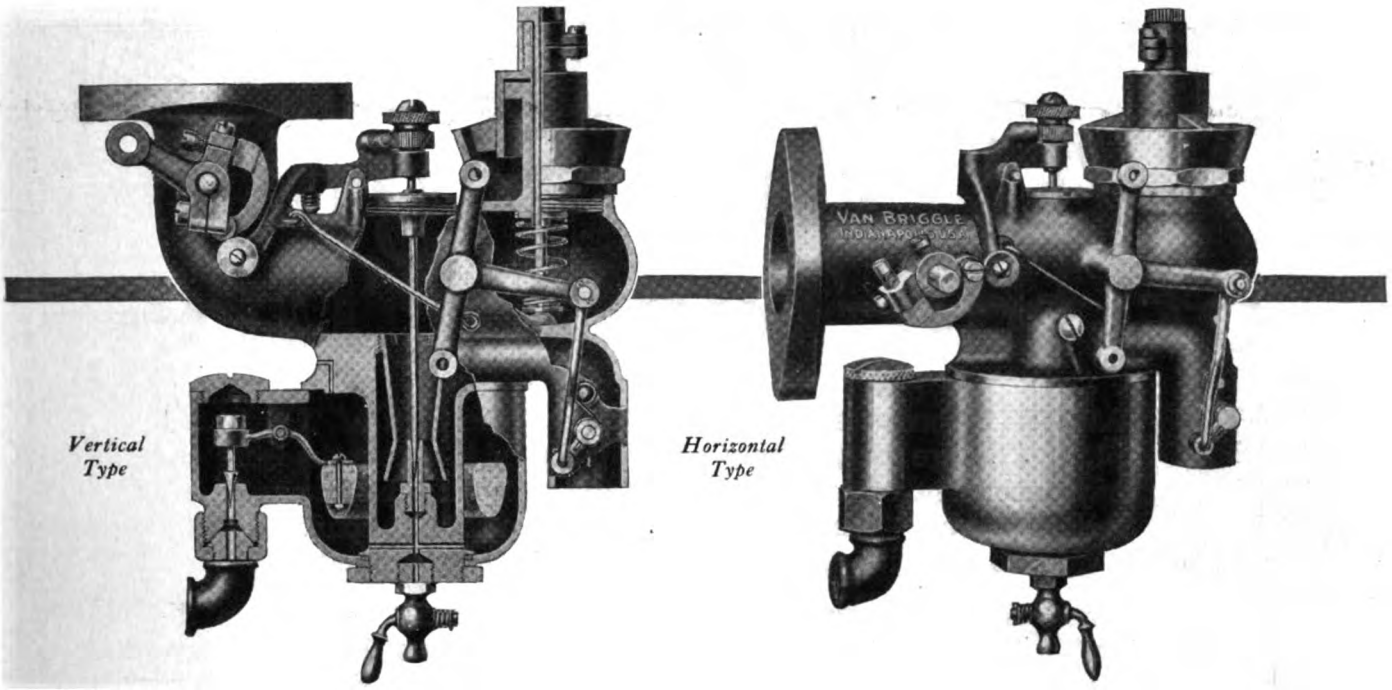
Name .....

Address .....

City and State .....

My Jobber's Name Is .....

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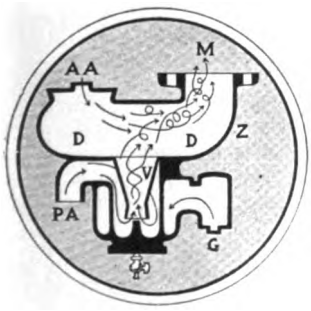


VAN BRIGGLE CARBURETOR

Just One Principle for all Motors

ABOVE are shown the ONLY two types of Van Briggle Carburetors—vertical and horizontal—each of which comes in five sizes. These, with a Ford special carburetor, are all that's necessary to fit practically *every* known make of motor! And each Van Briggle gives greater power—instant starting—increased mileage. Illustrated descriptive booklet sent free on request. Send for it. ¶DEALERS AND JOBBERS: The Van Briggle is as easily handled as tires. Small, compact stock meets any need. New opportunity for profit and service. Write for proposition.

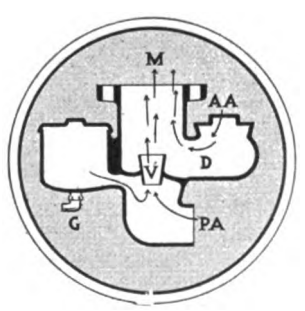
KEY TO DIAGRAMS: PRIMARY AIR (P. A.); AUXILIARY AIR (A. A.); GASOLINE (G.); MANIFOLD (M.); MIXING CHAMBER (D.); VENTURI TUBE (V.); LOCATION OF MANIFOLD ON HORIZONTAL TYPE (Z.).



The Van Briggle Way

EXPLANATION OF DIAGRAMS

Because of the peculiar construction of the Van Briggle's primary air chambers, the primary air enters the venturi tube in a whirling, swirling movement, breaking even the poorest gasoline into the most minute particles. The primary mixture then enters the mixing chamber. The auxiliary air, traveling across to the manifold MUST PASS THROUGH THE PRIMARY MIXTURE. Two mixtures are thus assured in the Van Briggle Carburetor—each thorough and absolute. A thorough mixture and complete vaporization mean EVERYTHING to your motor. Compare the Van Briggle Way with The Other Way. There *is* a difference!



The Other Way

VAN BRIGGLE MOTOR DEVICE CO.

429 North Capitol Avenue INDIANAPOLIS, INDIANA

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BEST IN THE LONG RUN

FAIR TREATMENT

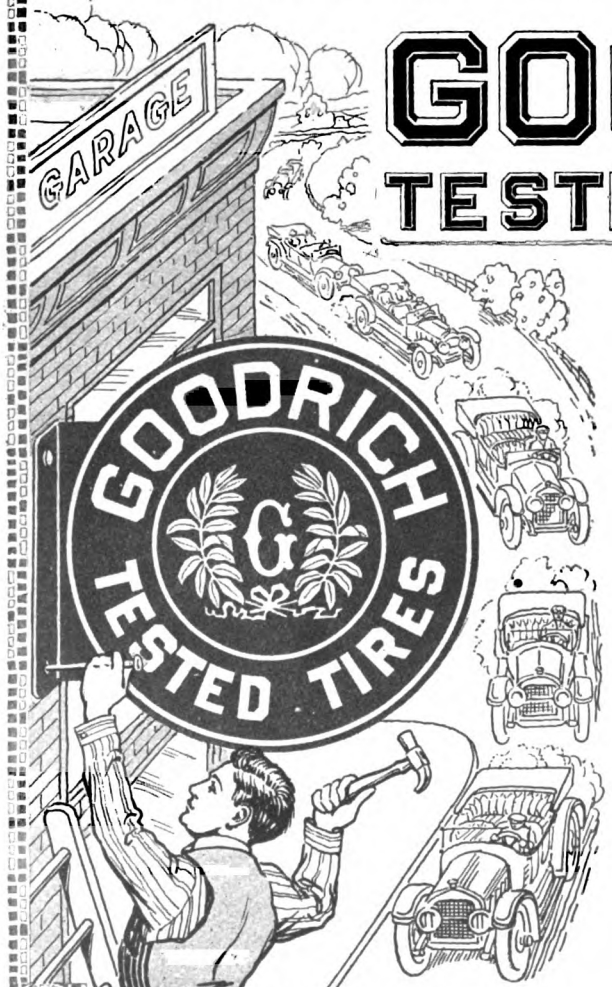
At the Sign of the Tested Tire

COMPLETE business confidence lives at The Sign of The Tested Tire. The tire user, halting at the sight of it, enters the store and buys, confident of maximum tire service because he knows it is a service proved. The Dealer behind the sign sells, as confident of the satisfaction the tire will give, as of the business and profits assured him.

The confidence of both springs from the magnetic word "Tested" on the magnet sign "Goodrich Tested Tires." The tire user knows these tires have proved their lasting strength under the Goodrich Test Car Fleets in every section of the country, in actual road tests against sand, gravel and rock, and every kind of weather.

The Dealer knows these tires, put through a mileage of hundreds of thousands of miles, have set a new standard for tires—the "Tested" of—

GOODRICH TESTED TIRES



IT gives a dealer business content to trade in Tested Tires. It is worth while for him to know that **BLACK SAFETY TREADS** and **SILVERTOWN CORDS,** long trusted because of the name Goodrich and the testimonials of many Goodrich tire users, have verified their supremacy in actual road tests which proved double all Goodrich claimed for them.

To the testimonial has been added the certain far reaching proof of the word "Test." And this gives a dealer a double riveted faith in the tires he sells.

Be a contented dealer, sure of good business by being a seller of "America's Tested Tires," with the Goodrich dealer's sign above your door.

THE B. F. GOODRICH RUBBER COMPANY

THE CITY OF GOODRICH - AKRON, OHIO.

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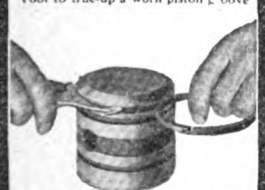
Make your pistons gas tight



The MUNGER "ALWAYS TIGHT" PISTON RING OUTFIT—

for FORDS
8 "Always Tight" Rings (Regular Size)
4 "Always Tight" Rings (Over Size)
1 Regrooving Tool
1 Ring Insertion Tool


Ready to insert the Munger Re-grooving Tool to true-up a worn piston groove


The Munger Re-grooving Tool in position for cutting. Testing width of groove with an over-size ring


A Munger "Always Tight" Piston Ring being slipped over the Munger Ring Insertion Tool


Showing how easily Munger "Always Tight" Piston Rings can be placed in the piston grooves with the Munger Ring Insertion Tool

MUNGER "Always Tight" Piston Rings


The MUNGER ALWAYS TIGHT EXPANSION JOINT

When piston grooves become slightly worn it is impossible to fit any rings in them gas-tight without first truing-up the grooves. With each complete set of Munger "Always Tight" Piston Rings is one oversize ring for each piston (to be used in worn grooves) and a Munger Regrooving Tool with which worn grooves can be straightened quickly and accurately without resorting to expensive lathe work, and without even disconnecting the piston from the connecting rod.

Munger Piston Rings *always* remain compression-tight.

These unique rings quickly conform to the shape of any cylinder and retain their perfect fit until completely worn out.

The wonderful compression-holding power of these simple one-piece rings is due to their scientific design and their accuracy of manufacture. The Munger Expansion Joint, so simple, yet so efficient—the patented process of peening, which makes these rings fit the walls of any cylinder—the minute oil grooves, which cause these rings to seat themselves almost immediately—are distinctive features that make Munger "Always Tight" Piston Rings superior to all others.

They are the easiest of all rings to install. With the Munger Ring Insertion Tool even a novice can place them in the piston grooves without breakage or the slightest trouble. And Munger Rings are the most inexpensive because they are practically wear-proof.

SPLITDORF ELECTRICAL CO.
Newark, New Jersey.

Accessory Dealers and Garage Men!
Any jobber will supply you with Munger "Always Tight" Piston Rings. Order them now!

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The Seal of Dependable Performance

ACME THE TRUCK OF PROVED UNITS

Trade Mark Reg. U. S. Pat. Off.

NOW
Even Greater Business Gain Awaits The ACME Dealer

The trade knows the great success of dealers selling the Acme truck. Proved Units of Acme construction stamp the Acme as the truck the careful buyer chooses.

Coming! Huge Acme Advertising Drive

Now the great strength of national advertising is to back every Acme truck dealer in America. 147 smashing wallops in 26 magazines best for selling trucks. Each message rings with proved units. Each echoes quality—service—economy—of Timken Axles, Timken Bearings, Timken Worm Drive, Continental Motor, Detroit Springs, Cotta Transmission, and so on down the list.

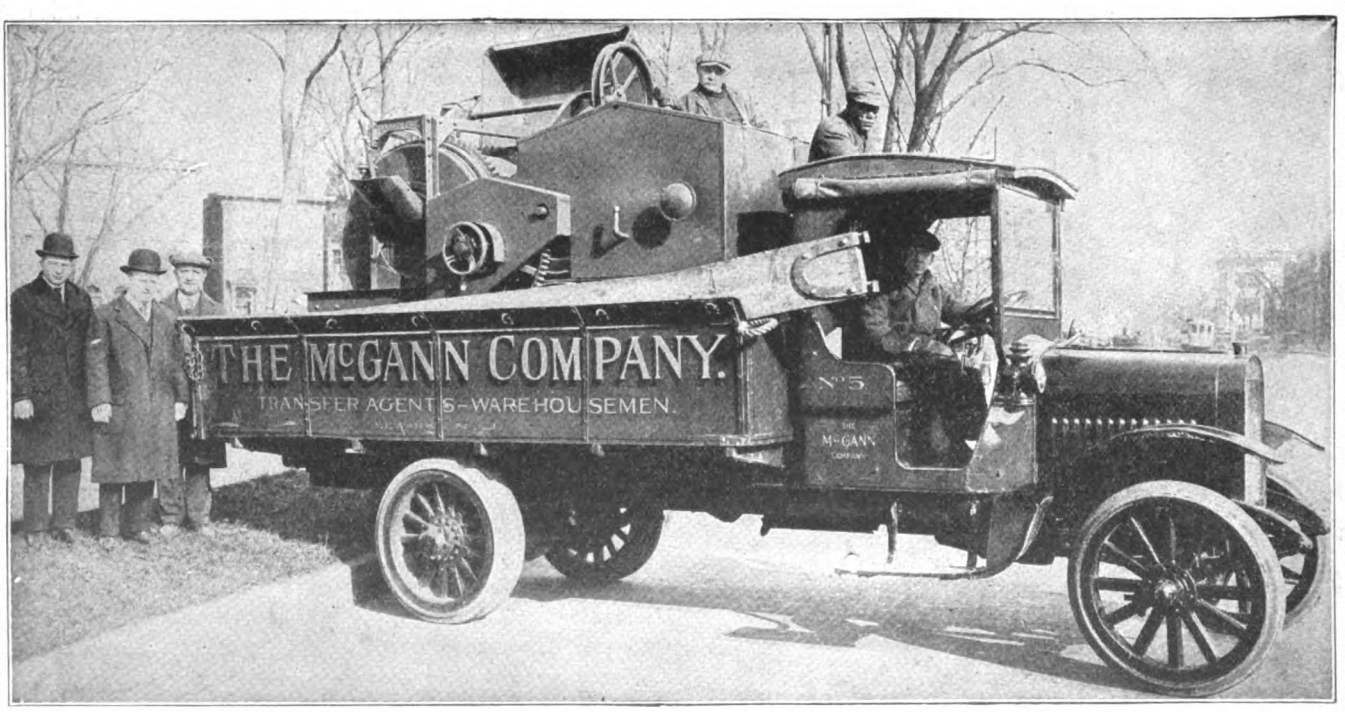
Worth Thousands of Dollars—WRITE!

The Acme dealership is actually worth thousands of dollars. More sales—quicker sales than ever. We're closing desirable territory with desirable men—now! Write.

Yes, immediate delivery can be had.

ACME MOTOR TRUCK COMPANY
71 Mitchell Street, Cadillac, Mich.

One-Ton to 4-Ton Models. Oversize in capacity and dimensions.



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The National Auto Show

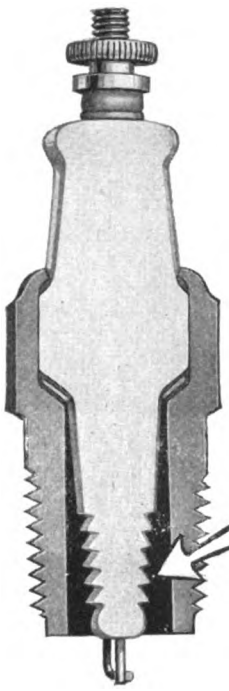
Under Auspices of National Automobile Chamber of Commerce, Inc.

Jan. 26—Feb. 2
at CHICAGO

Four Hundred Exhibits of Cars and Accessories

S. A. MILES, Manager **7 East 42nd Street, New York City**

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AC Carbon Proof
For Fords, Overlands and Studebakers

How Often Must You Clean Your Plugs?
Ford—Overland—Studebaker Owners

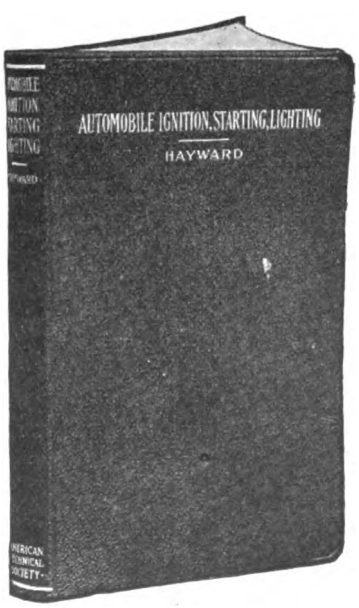
The new *AC Carbon Proof Plug* will permanently rid you of plug trouble and keep your motor running on *all* cylinders *all the time.*

The Reason

A deposit of carbon on the smooth surface of the porcelain is what causes short circuit with ordinary plugs. With the AC Carbon Proof plug the porcelain is provided with a number of ribs having saw tooth edges which attain a sufficiently high degree of heat to burn away the carbon. This keeps the edges free from deposits and breaks up any possible short circuit.

AC SPARK PLUGS
The Standard Spark Plug of America

Champion Ignition Company
Sole Manufacturers Flint, Michigan



761 *pages,* 481 *illustrations*
Flexible leather, gold stamped
$2.50 *Postpaid*

Automobile Ignition, Starting and Lighting

WITH QUESTIONS AND ANSWERS

By CHARLES B. HAYWARD

A comprehensive analysis of the complete electrical equipment of the modern automobile, including many wiring diagrams and details of all the important starting-lighting systems.

Some of the Principal Subjects Treated

Elementary Electrical Principles. The Electric Circuit, Magnetism, Induction Principles in Generators and Motors.

Ignition. Fundamental Ignition Principles, Sources of Current, Ignition Systems (Dual, Duplex, Double Spark, Ford Magnets), Spark Timing, Modern Battery Ignition Systems, Testing, Adjustment and Maintenance; Summary of Ignition Instructions (Questions and Answers).

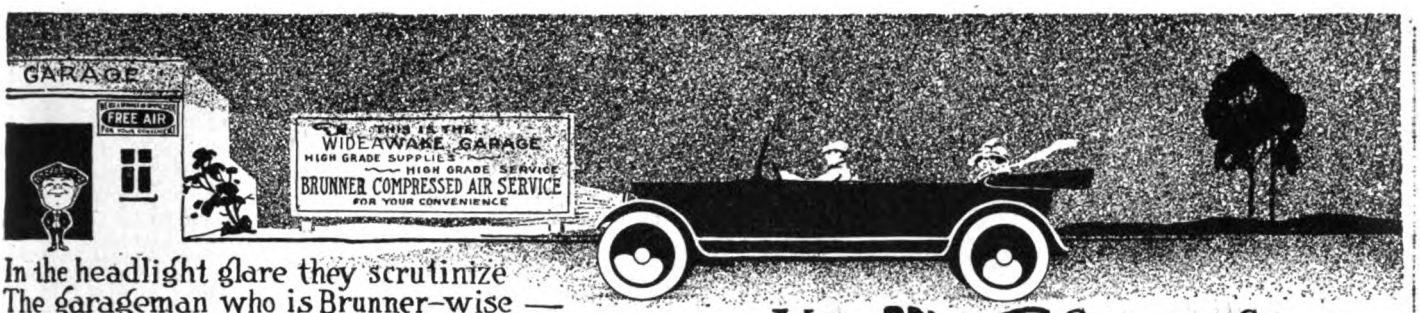
Electric Starting and Lighting Systems. General Features, Lighting Equipment, Practical Analysis of Types with Wiring Diagrams, including Auto-Lite, Bijur, Delco, Gray and Davis, Remy, U. S. L. Wagner, etc.; Summary of Instruction on Electric Starting and Lighting (Questions and Answers).

It is the most illuminating and instructive work of its kind ever published. Indispensable to the novice and the expert.
Pocket size, 5½ by 8¾—761 pages—481 wiring diagrams and illustrations. Flexible leather, gold stamped.

U. P. C. BOOK COMPANY, Inc.

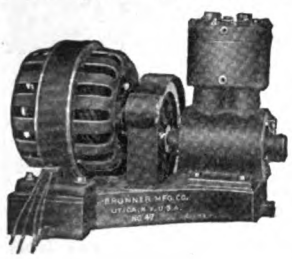
Successor to Class Journal Co., Book Dept. 241-249 West 39th Street, New York

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In the headlight glare they scrutinize
The garageman who is Brunner-wise —
On the Brunner sign they rest their eyes
And stop for air and – some supplies.

YES, BRUNNER SERVICE SATISFIES



Mr. Garagemen, is your compressed air service a dependable efficient service such as the red-blooded motorist who drives his car all winter demands?

This is a pertinent question just now, Mr. Garageman, because the majority of these red-blooded winter motorists are Brunnerwise motorists who prefer Brunner Service, and a Brunner Air Compressor in your garage this winter would secure their trade.

INVESTIGATE THE BRUNNER AIR COMPRESSOR

If you do not find the Brunner Line in your jobbers' catalogue we will be glad to send you the name of the Brunner Jobber covering your territory and one of our new No. 15 Catalogs.





BRUNNER MANUFACTURING COMPANY

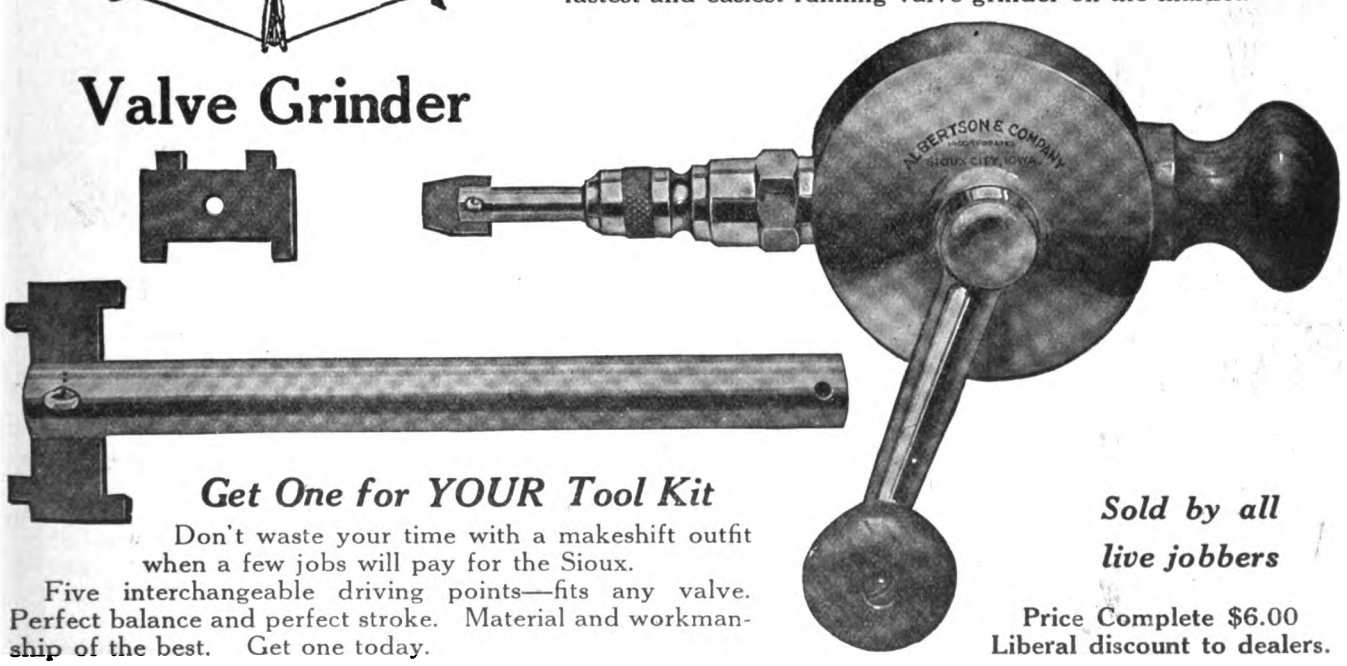
Main Office and Plant
UTICA, N. Y.

Cincinnati Branch
CINCINNATI, OHIO

The SIOUX Valve Grinder

Quick, Profitable Valve Grinding

A steady turn of the handle in one direction gives the valve the back and forth motion so necessary to perfect valve grinding. This, with ball-bearing construction, makes the Sioux the fastest and easiest running valve grinder on the market.



Get One for YOUR Tool Kit

Don't waste your time with a makeshift outfit when a few jobs will pay for the Sioux.

Five interchangeable driving points—fits any valve. Perfect balance and perfect stroke. Material and workmanship of the best. Get one today.

Sold by all live jobbers

Price Complete $6.00
Liberal discount to dealers.

Manufactured by ALBERTSON & CO., Sioux City, Iowa

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Profitable Motor Trucks for Dealer and Owner



WE offer the 1918 line of *International Motor Trucks* as a most profitable dealer opportunity. Your biggest selling year is just ahead, and these are the trucks with the steadiest popular and growing demand.

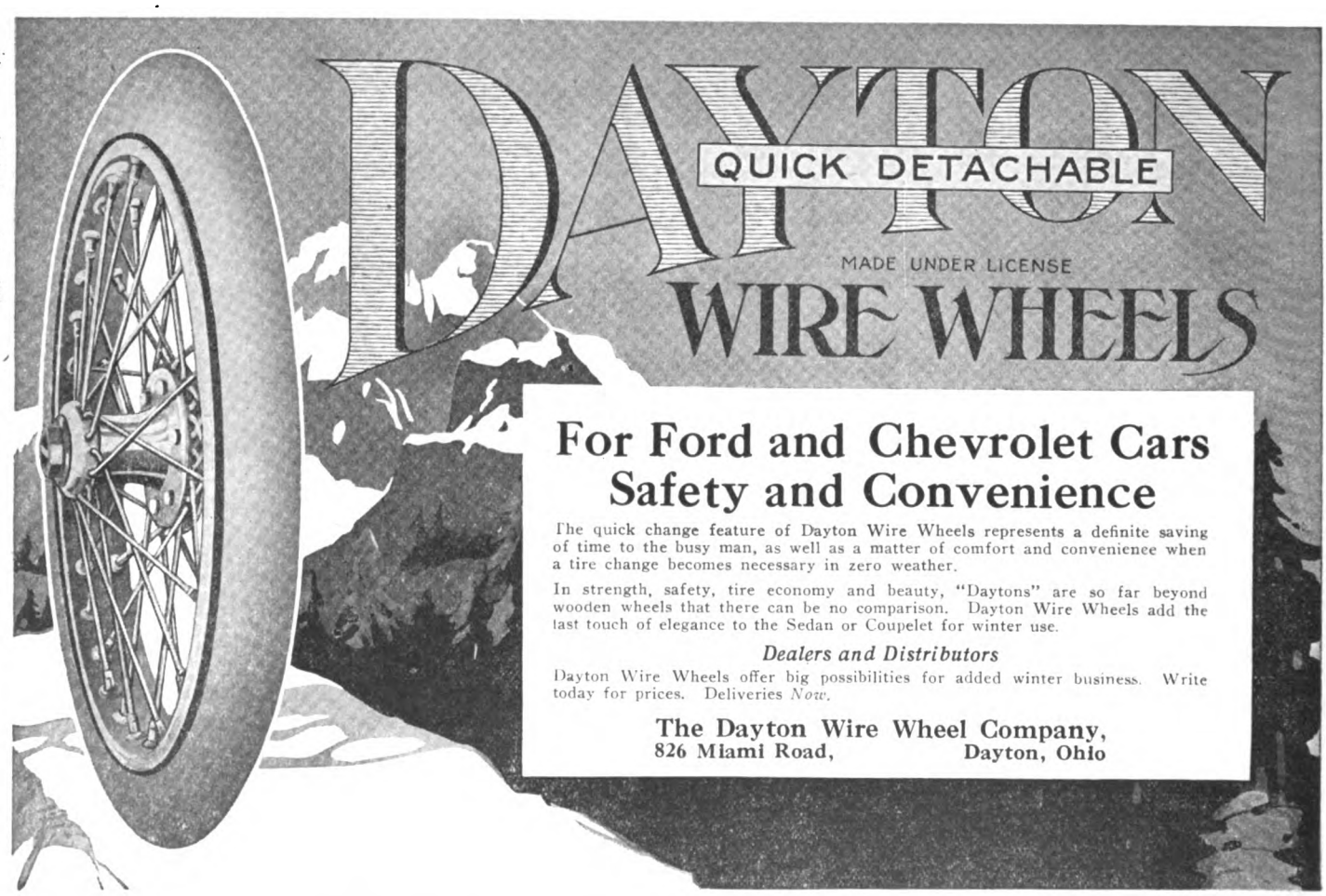
Concerns which make careful economy tests as a matter of good business, and which buy *economical transportation*, regardless of price, are standardizing on *Internationals*. One such concern has in service over 600 *International Motor Trucks* and is adding to this fleet regularly.

In every business, from truck gardening to manufacturing, wherever you find an *International Motor Truck*, you will find an owner who will bring out some phase of the "built-to-last" quality. Some marvel at the economy of the International engine; others at the efficiency of the International axle. Whatever the owner's story may be, proof is provided over and over again that International Motor Trucks are built with exacting care by an organization that has gained a world-wide reputation for the service it gives to its customers.

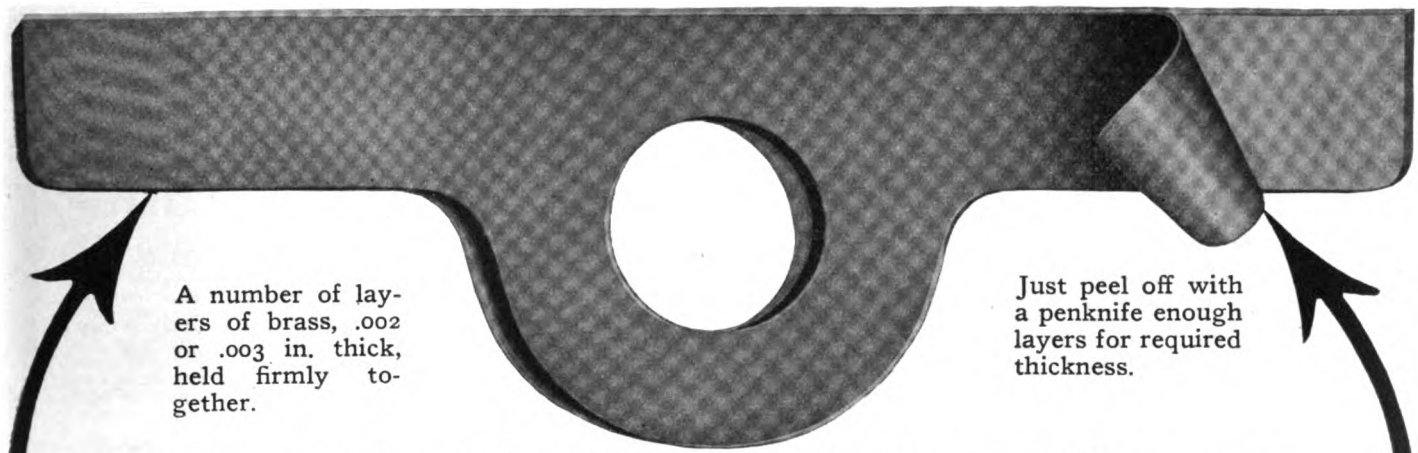
International Motor Trucks meet the needs of any and every firm with transportation problems to solve, in 1500, 2000, 3000 and 4000-pound capacity sizes, at prices ranging from $1,450 to $2,550 for the chassis (f. o. b. factory) with suitable bodies for every business. You know International standards and reputation—but have you seen the new 2-ton Model G?

The time is ripe for easy, profitable, thoroughly satisfactory selling. Your territory may still be open. If it is, get an International contract. Write today for full information.

INTERNATIONAL HARVESTER COMPANY OF AMERICA (Incorporated)
155 Harvester Building Chicago U S A



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A number of layers of brass, .002 or .003 in. thick, held firmly together.

Just peel off with a penknife enough layers for required thickness.

Here is the *modern* shim—the Laminated Shim. It greatly reduces costs for labor: saves time and trouble, bearing adjustments made absolutely accurate. Approved by leading engineers the world over. Let us send a sample. Once tried, you will never use old-fashioned, loose-leaf, solid or fibre shims.

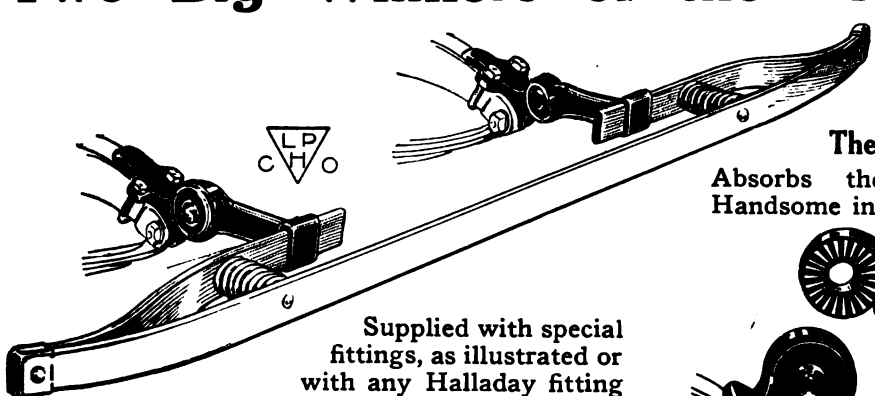
LAMINATED SHIM COMPANY, 533 Canal St., New York

DETROIT: Dime Bank Bldg. LONDON: R. A. Rothernel, 6 Great Marlboro' St., London, W.

LAMINUM

The MATERIAL for SHIMS

Two Big Winners of the HALLADAY Line



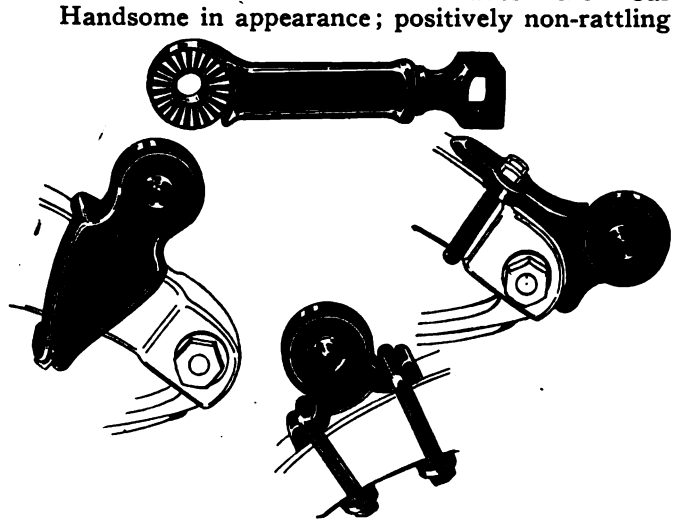
Supplied with special fittings, as illustrated or with any Halladay fitting

The New HALLADAY MULTIPLE SPRING BAR

The Last Word in Bumper Efficiency

Absorbs the Shock and Saves the Car

Handsome in appearance; positively non-rattling



THE HALLADAY STANDARDIZED UNIT

The greatest bumper proposition ever offered the dealer.

By carrying a stock of these four parts, and a supply of our bumper bars, that dealer can assemble and fit perfectly 90% of all the cars on the market with front frame extensions and for the rear of practically all cars with rear extensions of three-quarter elliptic springs.

Write for our new catalog fully describing the Halladay line.

L. P. HALLADAY COMPANY, Streator, Illinois

DISTRIBUTORS: Asch & Co., 16-24 W. 61st Street, New York City; E. L. Thompson Co., 817 Boylston Street, Boston, Mass; Gray-Heath Co., 1440 Michigan Avenue, Chicago, Illinois; Sanford Brothers, Chattanooga, Tenn., Southern Distributors; Hughson & Merton, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors.

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TAKE A LESSON *from the* TELEPHONE LINEMAN

25¢ *each*

Linemen make splices very carefully. They painstakingly twist the two wires together—the soldering is laboriously done—the union is protected with expensive taping. And all to prevent loose connections.

Ignition systems are no different. Loose connections, the cause of most ignition troubles, should be as carefully guarded against by the motorist. It's therefore profitable to sell the one device that's virtually a connection clamp—the

HANDY TERMINAL

Grips Like a Vise

Vibration and jar won't loosen the connection, in fact it gets firmer, if made by a HANDY.

The jaws of the HANDY are threaded on the inside. They engage the threaded inside center bolt of the spark plug. By simply pulling up on the ring with the first and second fingers—see illustration—the steel spring is compressed and the plug released. No tools are required; no nuts to tighten or loosen.

The magneto cable is held by a ferrule—an integral part of the terminal. The stripped wire is firmly held by a brass clip. It can't work loose.

The HANDY is a necessary convenience. You can sell one for each cylinder. It's a winter seller. It has a field of its own. Write us if your jobber isn't stocked.

THE FRANCIS-RAND CO.

Manufacturers of

HANDY PRODUCTS

406 Erie Building, CLEVELAND, OHIO, U.S.A.

Through the winter months, the very thing that makes business run low in other lines makes *profits in battery charging run highest.* Heavy starter service when the engine is cold and excessive use of lights on account of shorter days quickly drain the storage battery and bring

Big Winter Profits
in HB Battery Charging

Wise garage owners everywhere with HB equipment are clearing $30 to $60 a month extra profit right along and many are making two and three times this much. The HB 500-Watt Battery Charger guarantees *quick charging and large profits.* Recharges 1 to 7 batteries at a time at cost of 12c. to 15c. per battery. Autoist pays 75c. to $1.50. No special electrical or mechanical knowledge required. City current operates, or belt-driven equipment can be supplied if city current is not available.

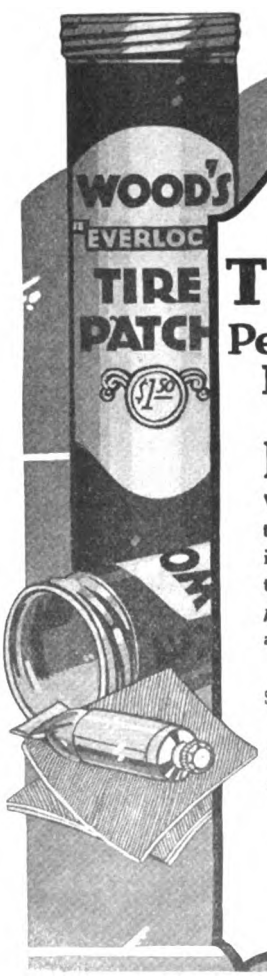
$15 Puts This Money-Maker in Your Garage

Balance in 8 monthly payments of $20 each, which earnings should easily pay and give good profit besides. Write for full particulars, or send initial payment of $15 *with this ad for special ten day trial of this equipment.* You take absolutely no risk. Satisfaction guaranteed or your money back. The quicker you get your charger, the sooner your profits begin. Write or wire TODAY.

HOBART BROTHERS COMPANY

Box W11 Troy, Ohio





WOOD'S EVERLOC TIRE PATCH
Permanently Repairs 17 inch Blowouts

NO more heat vulcanizing. A million motorists are using Wood's Everloc for repairing punctures and blowouts. You can apply it in a few minutes without heat, tools or experience. It makes a *permanent* bond at once. It is guaranteed never to leak or creep.

At your dealer's: 50c, $1.00, $1.50.

DEALERS: Write us or your jobber today for Wood's Everloc proposition.

W. C. Wood Company

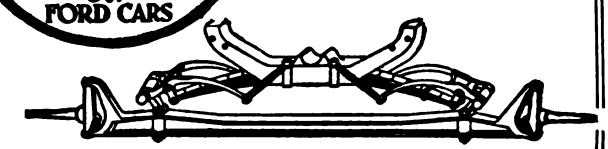
74 Western Avenue, Minneapolis, Minn.

Special Garage Size 20" x 28"

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The Original Double-Arm SHOCK ABSORBER W & C For FORD CARS

$10 Per Set of 4



W & C

The Original Double-Arm Shock Absorber Makes As Much Difference As Pneumatic Tires on Fords

Installing a set of W & C double-Arm Shock Absorbers is as good as substituting pneumatics for a set of hard rubber tires. Their resiliency reacts to the immediate advantage of both passengers and mechanism.

They are as desirable on Ford cars as air-filled tires. You *know* how desirable *that* is.

Ask your dealer to-day—and say "W & C."

Some territory still open that needs live dealers. WRITE.

P. H. WEBBER COMPANY
HOOPESTON ILLINOIS

ROBERTS'

Splendola

The New Body Finish



—And a Complete Line of Other Seasonable Products

"1000% Better Than the Next Best," Says One Jobber

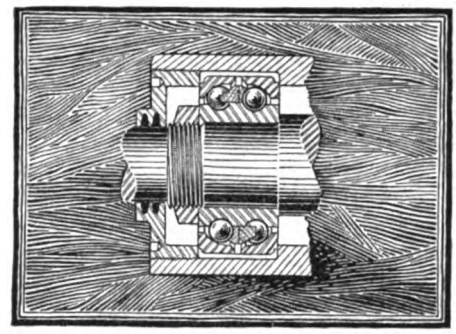
SPLENDOLA is a body finish that never fades. Has the staying qualities of paint or varnish. Not a polish—not in competition with one. Sells fast wherever introduced because it gives results that last.

All SPLENDOLA Products sell—backed by an advertising campaign that makes representatives succeed.

Dealers, Jobbers, District and State Representatives write for details. Immediate action essential.

Inquiries in your territory referred to you.

C. F. ROBERTS CO., Inc.
DETROIT MICHIGAN



Here is economy—added efficiency too. Compare these installations and understand why the New Departure Double Row Ball Bearing has revolutionized ball bearing practice.

NEW DEPARTURE BALL BEARINGS

Compare the cost of bearings. The Double Row is obviously less expensive than the other three bearings.

Compare the cost of housings. The thrust washers must have spherical seats while the Single Row must be carefully fitted so as to "float." The Double Row housing need only be machined as for a conventional Single Row.

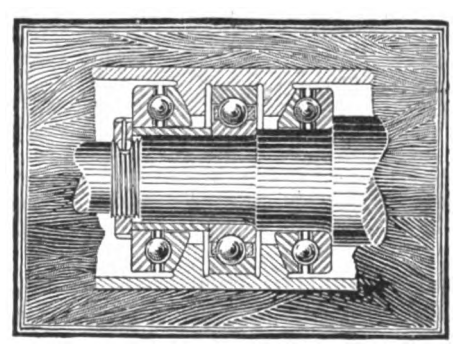
Compare the space occupied; less than half for the Double Row, an important consideration in many designs.

Compare the capacity. The Double Row resists an equal amount of thrust and from ⅓ to ½ more radial load.

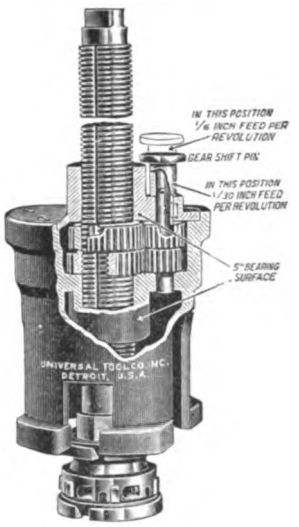
Compare the adjustment. The Double Row is always in correct adjustment while it is difficult to maintain a correct adjustment and alignment with three bearing units.

Compare the action. You have true rolling motion at all times in the Double Row. Thrust washers are admittedly limited to low speed ranges.

THE NEW DEPARTURE MFG. CO.
BRISTOL, CONN.



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The New Improved Universal Cylinder Reboring Tool

Is Built to Guarantee Absolute Accuracy

Designed to rebore practically all makes of automobile, tractor, stationary, marine or aeroplane—either open or closed end cylinders, and will rebore a true, round, straight bore. Cutters adjustable from ½ to 1-1000 of an inch. For other new and important improvements—

Specify Catalog No. ——

Write for free illustrated literature with complete details.

THE UNIVERSAL TOOL COMPANY, Inc.
Detroit, Michigan



Blankets won't help much if—

the oil you are using does not flow freely at Zero.

SUPREME AUTO OIL flows freely at Zero.

STARTS WITH THE ENGINE

This is most important during the Winter months. You should know whether the oil you are using "flows freely at Zero." All oils do not possess this feature—notably the paraffine-base oils, which thicken up under cold and often cause great damage to the motor.

The safe way is to ask for SUPREME AUTO OIL—it "Flows freely at Zero" and leaves less carbon, owing to the fact that it is a Southern Asphalt-base oil containing no paraffine to gum, stick or thicken.

MANUFACTURED BY

GULF REFINING COMPANY

The Largest Independent Refining Company in the World

General Sales Offices: Pittsburgh, Pa.

District Sales Offices: New York Philadelphia Boston Atlanta Tampa New Orleans Houston

District Representatives

The manufacturer of a well-known automobile accessory will have several desirable District Agencies available very soon. Established business with jobbers and garages awaits a few high-grade men with moderate capital and the ability to create and maintain aggressive selling organizations. Possible curtailment in automobile production means greater demand than ever. Our National advertising and liberal dealer helps will get this business for you.

Address Box 12, Accessory Manufacturer, care of Motor World, Mallers Building, Chicago, Ill., for particulars.

LEWIS VALVES Toledo

Mean More Power

Cheap Valves warp, cause loss of power, loss of compression, difficulty in starting, reduction of mileage.

It pays to be *sure* of your valves.

Lewis special heat-treated valves make users of ordinary common valves literally "sit up and take notice." Lewis has learned the secret of making better valves by concentration and specialization—that's why Lewis Valves are better.

There's more to valves than some people think—would you like to know? Write Lewis.

Lewis Electric Welding & Mfg. Co.
TOLEDO, OHIO

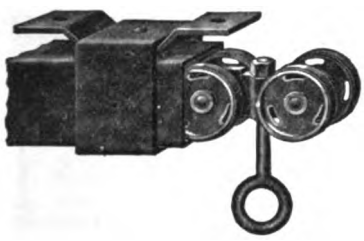
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Where Minutes Mean Money 'Tis Folly to Lose Time

The men in your employ represent so many hours of time each day. You can't stretch one of those hours the least bit to cover a given amount of work. When the hour has passed it's gone forever, and if your patron's car is not ready you have lost not only the time and the money time represents—but the good will of your customer.

You can't stretch time, but—you can control your work. You can derive more work from your employees and your equipment in a given time by installing in your garage a

Richards-Wilcox Overhead Carrying System



If your requirements are small, you can get an R-W Overhead Equipment suited to those requirements at a slight cost. If you have a large establishment which requires an extensive system of tracks, curves, switches, turntables, side tracks and carriers capable of transporting tons at a time, you can secure a Richards-Wilcox System to suit the case.

"Overhead Carrying Equipment." published by us for those interested, illustrates and describes equipment for your purpose. Sent without obligation. You ought to have a copy.

Richards-Wilcox Manufacturing Co.

SAN FRANCISCO LOS ANGELES NEW YORK CHICAGO

AURORA, ILLINOIS, U.S.A.

Richards-Wilcox Canadian Co. Ltd. London, Ont.

PHILADELPHIA MINNEAPOLIS BOSTON ST. LOUIS

"A hanger for any door that slides"



Kester Crystal-Core Wire Solder

is the most practical solder for automobile repair work. The solder is a hollow wire filled with an acid flux (see cut), which flows as solder is used. Cheaper to use than solid wire or bar solder, as it eliminates preparing, hunting for, or applying the acid-flux.



Cleaner, Neater, Quicker

For spark plug and battery terminals, electric light connections, cracked fenders, gasoline pipe and tank joints, radiator leaks, speedometer flexible shaft, and the general garage uses.

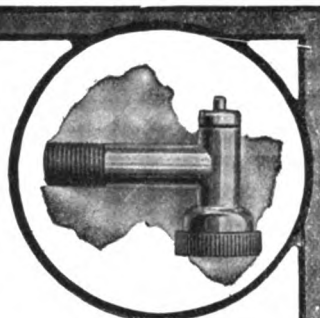
Sold in one pound coils and on one, five and ten pound spools.

Ask your jobber to supply you.

CHICAGO SOLDER CO.

CHICAGO ILLINOIS

You can't tell how much Bengal Tiger there is in a white rabbit until you put him on a meat diet





. . . .and you can't tell how many miles your tires can give you until you put them on a REGULATED, MEASURED, air diet. Just so many pounds pressure, no more and no less.

If you pumped up your tires every time they fell below the pressure specified by the tiremaker, they would last for the maximum distance. Don't say pumping is too much trouble. With a

SCHRADER UNIVERSAL PUMP CONNECTION

it is no trouble at all.

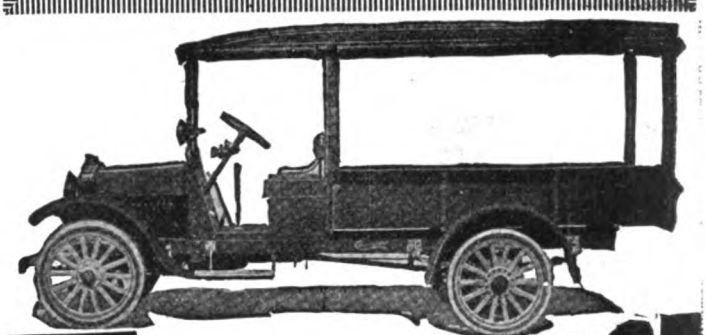
Ask your dealer to show you how it works.

Price Thirty-five Cents.

A. Schrader's Son, Inc.

783-803 Atlantic Ave.

Brooklyn, N. Y.



Commerce

1 Ton Trucks

A Year Ahead *of* Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

Commerce Truck Motor, Detachable Head—Torbensen Rear Axle—Detroit Steel Products Company Springs.

One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company

DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.

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A REAL ADVANTAGE

BOSCH MAGNETO IGNITION

BOSCH MAGNETO CO., 224 West 46th St., NEW YORK

Service Stations in Every State

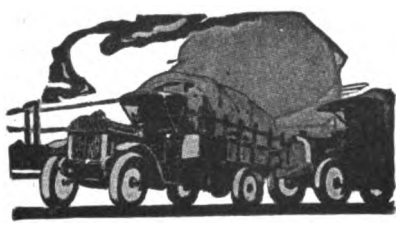


GUARANTEE VISIBLE PUMPS

are replacing all the "blind" type pumps at gasoline filling stations and garages.

Fast, accurate, not affected by temperatures.

Guarantee Liquid Measure Co.
Farmers Bank Building, Pittsburgh, Pa.



MANLY TRUCKS—The Biggest Advance in Truck Construction of the Decade, 1½ and 2½-ton Models

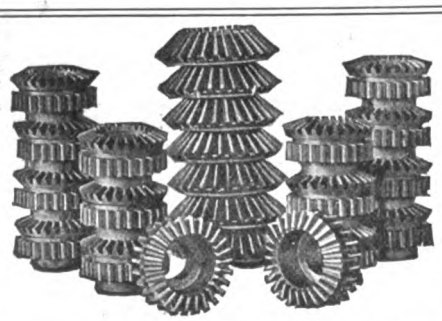
DEALERS WRITE
MANLY MOTOR CORPORATION
FACTORY, WAUKEGAN, ILL.



The Extra Miles in Empire Tires mean extra sales for

The Empire Tire Dealer

Write for our proposition
THE EMPIRE RUBBER & TIRE CO.
TRENTON, N. J.



GEARS

Complete differentials, gears for transmissions, spur helical and bevel gears for any service.

In any quantities— made to order

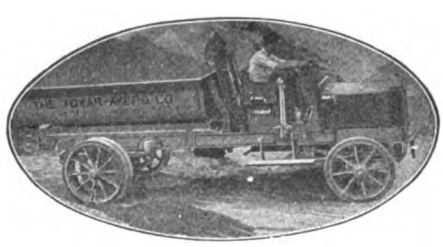
NEW PROCESS GEAR CORPORATION
SYRACUSE, N.Y.

IMMEDIATE DELIVERIES

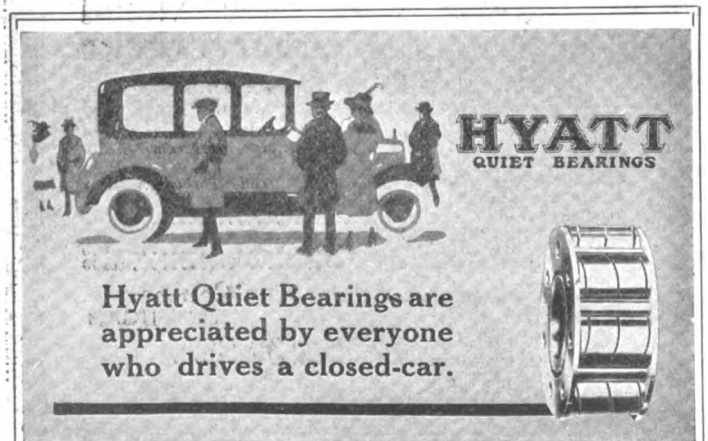
UNITED TRUCKS

2-TON 3½-TON 4-TON 5-TON

Immediate deliveries mean *additional* profits! Wire us your requirements and for option on your territory.



United Motors Company
671 NORTH STREET
GRAND RAPIDS, MICHIGAN



HAYNES

"Light Six" $1595
"Light Twelve" $2095

AMERICA'S FIRST CAR

Reputation
Product
Publicity

Haynes enjoys a world-wide reputation for building long-lived cars of low upkeep. We intend that, during our *25th Successful Year*, Haynes dealers shall cash in on Haynes reputation to an even *greater* extent. Write

THE HAYNES AUTOMOBILE CO.
70 So. Main St. Kokomo, Ind

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Ball Bearings Properly Reground

have all the qualities of new bearings—but they are *cheaper.*

The Sign of Service

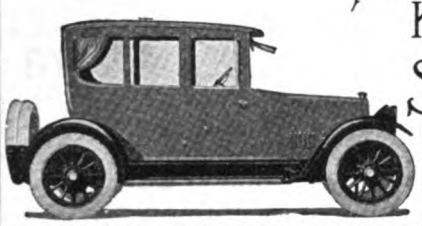
Distributors of Hess-Bright new bearings. Complete stock of all types of ball bearings.

See our nearest branch

Ahlberg Bearing Company

2636 Michigan Ave. Chicago, Ill.

New York, Boston, San Francisco, Detroit, Minneapolis, Los Angeles, Cleveland, Atlanta, Portland, St. Louis

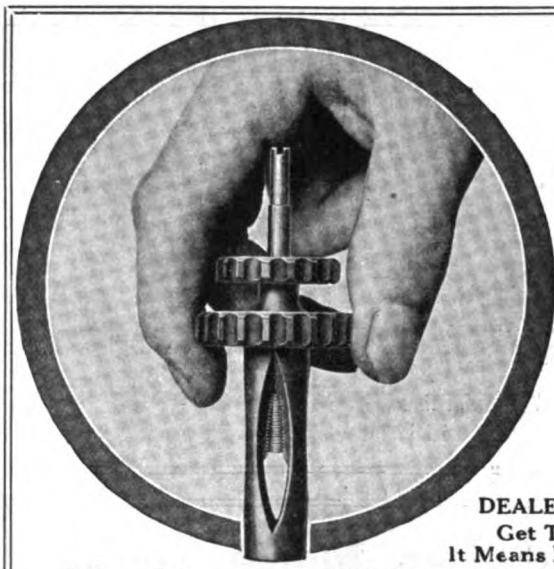


The New KISSELKAR 4 Passenger Sedané

Inspect its exclusive Kissel features. The ALL-YEAR Top is entirely removable or all side windows may be lowered or raised. Mounted on the Hundred Point Six—the car of a Hundred Quality Features—with the new Kissel-built power plant. Write, wire or 'phone us to-day for Agency openings.

Kissel Motor Car Company
Hartford, Wis., U. S. A.

KISSELKAR
EVERY INCH A CAR



DEALERS—
Get This
It Means Business

A Necessity
They move quickly at
$1.50



A simple, easily operated instrument with which the worn, irregular threads of the tire valve can be quickly recut.

A&H True Threader Valve Tool

cuts both inside and outside threads of the cap stem and plunger at the same time and insures perfect alignment. Recutting threads stops leaking at the valve, which is the cause of a large percentage of tire trouble. Endorsed by all the leading tire Co's. Adopted by Miller, Firestone and U. S.

Write us today for further details and literature.

A & H MANUFACTURING CO., Inc.

505-507 WEST 45th STREET :: NEW YORK CITY

Makers of Springs and Axles for Heavy Duty Service for more than Fifty Years

SHELDON
WORM GEAR AXLES

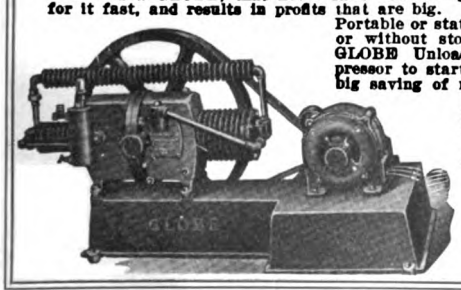
SHELDON AXLE & SPRING CO.

WILKES-BARRE : : : : : PENNA.

GLOBE Air Compressors

Popularize Air Service for Profits

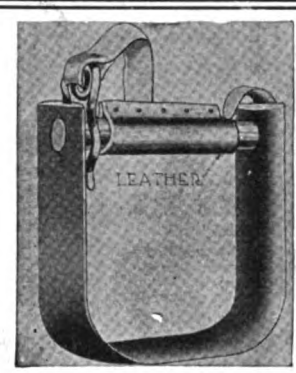
—because experience has proved to motorists that improved equipment insuring perfect air service indicates improved equipment and perfect service in other departments in the same garage. Your air compressor—if it is a GLOBE, that never fails—can bring in business that pays for it fast, and results in profits that are big.



Portable or stationary equipment, with or without storage tanks and motor. GLOBE Unloader permits the compressor to start without any load. A big saving of money, time and labor.

Write for free illustrated literature. Let us show you that GLOBE Equipment pays.

GLOBE
Manufacturing Co.
Battle Creek, Dept. B
Michigan



Every Truck With Solid Tires Needs EASYON Truck Grips

They take a firm hold on any road but cause no bumping on pavements.

WOODWORTH

EASY-ON SOLID TIRE GRIP

The Easyon Solid Tire Grip is made from half oval steel U-shaped to fit over the tire and rim. The rounded side comes next to the rubber presenting a perfectly smooth surface that does not cut or injure it.

It is held in place by a round leather covered bar that connects the end across the felly of the wheel between the spokes. On pavements the bar raises up from the felly but in mud or snow it comes against a spoke tilting the grip so that one edge digs into the soft road taking a strong hold.

Will save double their cost in tires besides causing no bumping to machinery.

Made in all sizes for single or dual tires.

Dealers and Jobbers should write for proposition.

Woodworth Mfg. Corporation

Niagara Falls, N. Y.

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BETHLEHEM MOTOR TRUCKS
"Dependable Delivery"

$1245 — 1¼ Ton Chassis
$1305 — 1¼ Ton Complete with body and cab
$1775 — 2¼ Ton Chassis
$1850 — 2¼ Ton Complete with body and cab

F. O. B. ALLENTOWN

Built to dominate the truck business in your territory—backed by the Bethlehem guarantee and a strong national advertising campaign. Is your territory covered?

BETHLEHEM MOTORS CORP'N
ALLENTOWN, PA.

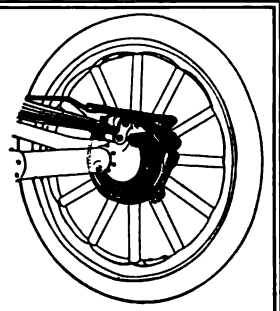
MR. DEALER

One dealer in a town of 3000 people installed Forty Sets of "Pla-Safe Brakes" last March. Another dealer in a crossroads town installed twenty-five sets this summer.

All you need to do is to show a Ford Owner this Brake and he buys it.

Simple to install, no holes to drill. Why not cash in on this fast-selling accessory?

Write for our Disc and Big Selling Plan.



Retail price
$10.00 per Set

PLA-SAFE CO. Successors to L. A. Leathers Co. BROOKVILLE, PA.

Quality in Motor Trucks

It has been our endeavor to create a commercial vehicle that would excel first of all in the quality of the material used, and, second, in the economy of its operation.

Our reputation for producing the most lasting truck is recognized by our many users.

We offer for your convenience the following sizes:

1½-ton 3½-ton
2-ton 5-ton
7-ton

Hurlburt Motor Truck Company
133rd St. and Harlem River New York, N. Y.

The Pullmore Front Drive TRUCK is here

Union Arcade, Pittsburg, Penna.

KIMBALL TIRES
Are Doubling Profits for Some Dealers

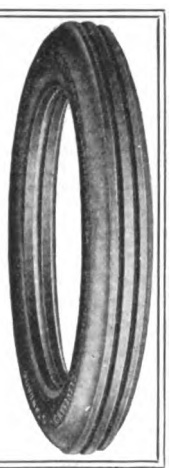
Write for Our Interesting Offer

These tires are sold without a guarantee. Write and ask us how we do it. They are positively *not* seconds, but first-class fresh casings.

	Non-skid	Tubes		Non-skid	Tubes
30x3	$ 7.55	$1.90	32x4	$14.75	$3.05
30x3½	9.85	2.15	33x4	15.75	3.10
32x3½	11.55	2.25	34x4	16.35	3.20

Prices on Other Sizes in Proportion

Send us your order today, accompanied by cashier's draft on Chicago or New York, or money order. Large and small orders given immediate attention. *Write today for territory. Prices will positively be advanced shortly. Place your order now.*



The Kimball TIRE & RUBBER CO. Inc.
1469 Michigan Ave., Chicago

This "Straight Side" Type is Made Also in Clincher Type

AUTOMOTIVE INDUSTRIES
The Automobile

THE industrial authority on all matters connected with the automotive industries.
The oldest weekly journal in the field.
Its scientific articles are complete and authoritative—its editorials of importance—its news accurate and valuable.
Published weekly, $3.00 per year.
Canada $5.00, Foreign $6.00.

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WIRE WHEELS
for SAFETY and STRENGTH
QUICK CHANGE
BEAUTY and COMFORT

WIRE WHEEL CORPORATION of AMERICA
(Successors to Houk Manufacturing Co.)
Factories: BUFFALO, N. Y., and SPRINGFIELD, MASS.
Direct Factory Branches and Service Stations:
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Detroit, 16 Davenport St. Los Angeles, 1101 South Hill St. San Francisco, 1243 Van Ness Ave.

The "Big Stick" That Brings Down Gasoline Expense

Up goes the price of gasoline! Maximum mileage is the big problem of the day! Solve it with the New Stromberg Carburetor.



The official world's records made by the New Stromberg in gasoline mileage prove that you need the New Stromberg on your car. Mail coupon for details of how the New Stromberg will reduce your gasoline bills.

Stromberg Motor Devices Co., Dept. 18, 64 E. 25th St., Chicago

New STROMBERG Does it! CARBURETOR

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Schutte SPORT BODIES

ARE BUILT
TO FIT ANY MAKE OF CAR
"MILITARY SPORT MODEL"
Popular Among Officers

Schutte DISC WHEELS

INCLOSURES
FOR ANY STYLE OF
"WOOD OR WIRE WHEEL"
Patent Applied For

CHARLES SCHUTTE BODY CO.
LANCASTER PENNA., U. S. A.

Cored Bars
HIGH SPEED
NON-GRAN
BEARING BRONZE
For Bushings

AMERICAN BRONZE CORPORATION
BERWYN, PENNSYLVANIA
Sole Manufacturers of Non-Gran and Largest Exclusive Manufacturers of Bearing Bronze in the World



Get Your ROEDDING Signal Tail Light Territory Now

Our ground floor offer is waiting for you. Territory is going fast. Write for full details and EXCLUSIVE TERRITORIAL RIGHTS. Liberal offer. Wire for immediate attention.

K. G. BARKOOT
Sole Distributor
1010-11-12 Chamber of Commerce Bldg., Detroit, Mich.



KEYSTONE SHOCK ABSORBERS

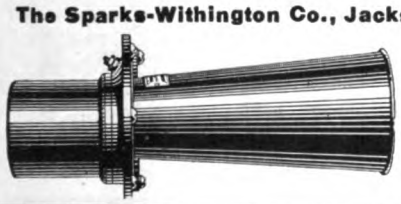
Ask us to send you a set of these, along with descriptive booklet and dealer proposition—if you are selling automobile accessories.

Dandy profits for dealers.

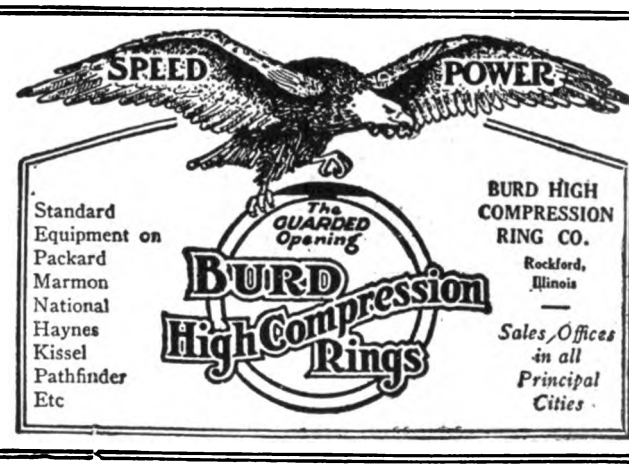
STEEL CITY ELECTRIC CO.
1207-19 Columbus Ave., Pittsburgh, Pa.

SPARTON PRODUCTS
First Choice of America's Best Cars

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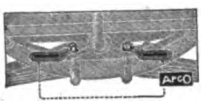
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"Tis like the hide in most respects In some respects 'tis better

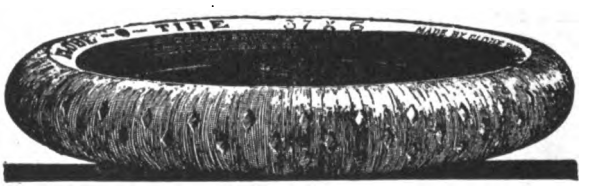
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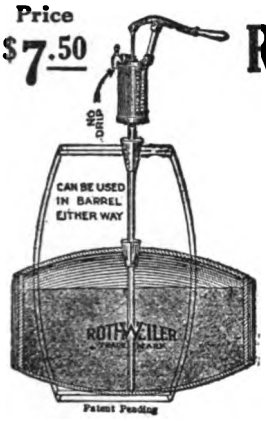
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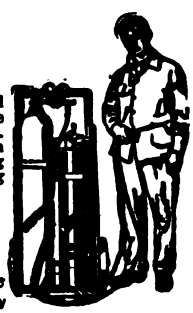
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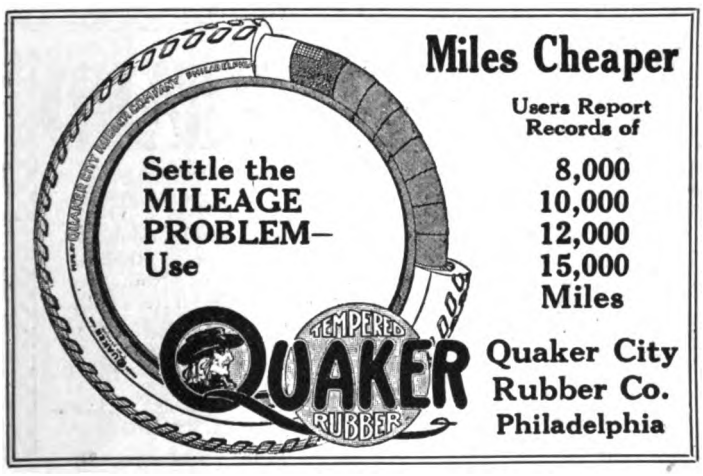
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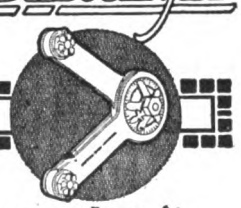
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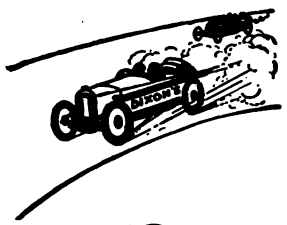
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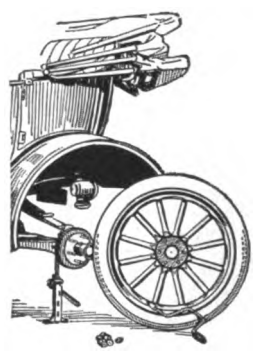
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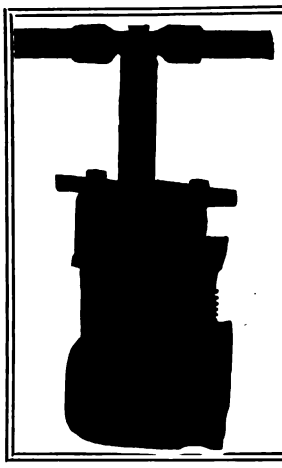
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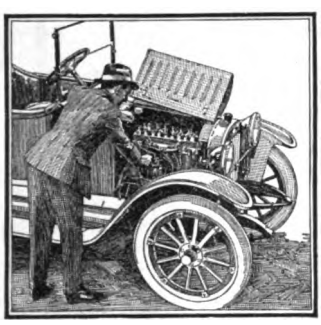
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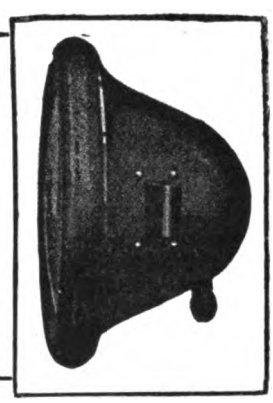
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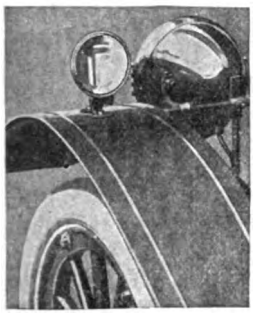
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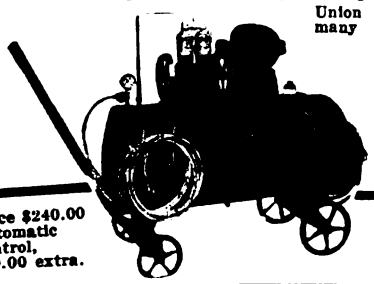
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Prevents Theft

High grade padlock locks steering gear in place. Cannot be driven or towed away.

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34 x 3½	6.00	36 x 4½	8.00
31 x 4	5.00	37 x 4½	8.50
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30x3½	8.45	9.45	34x4½	17.45	19.45
32x3½	9.45	10.40	35x4½	17.95	19.95
31x4	11.95	13.10	36x4½	18.45	20.45
32x4	12.45	13.45	37x4	18.95	20.95
33x4	12.95	14.00	35x5	19.95	22.45
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30x3	7.00	2.00	33x4	14.50	3.50	36x4½	22.00	4.30
30x3½	8.75	2.30	34x4	15.00	3.65	37x4½	22.80	4.60
32x3½	10.50	2.45	35x4	15.85	3.75	35x5	23.10	4.65
34x3½	11.50	2.70	36x4	16.20	3.85	36x5	23.95	4.75
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32x4	5.50	36x4½	7.00
34x3½	6.00	37x4½	8.00
33x4	6.00	35x5	8.00
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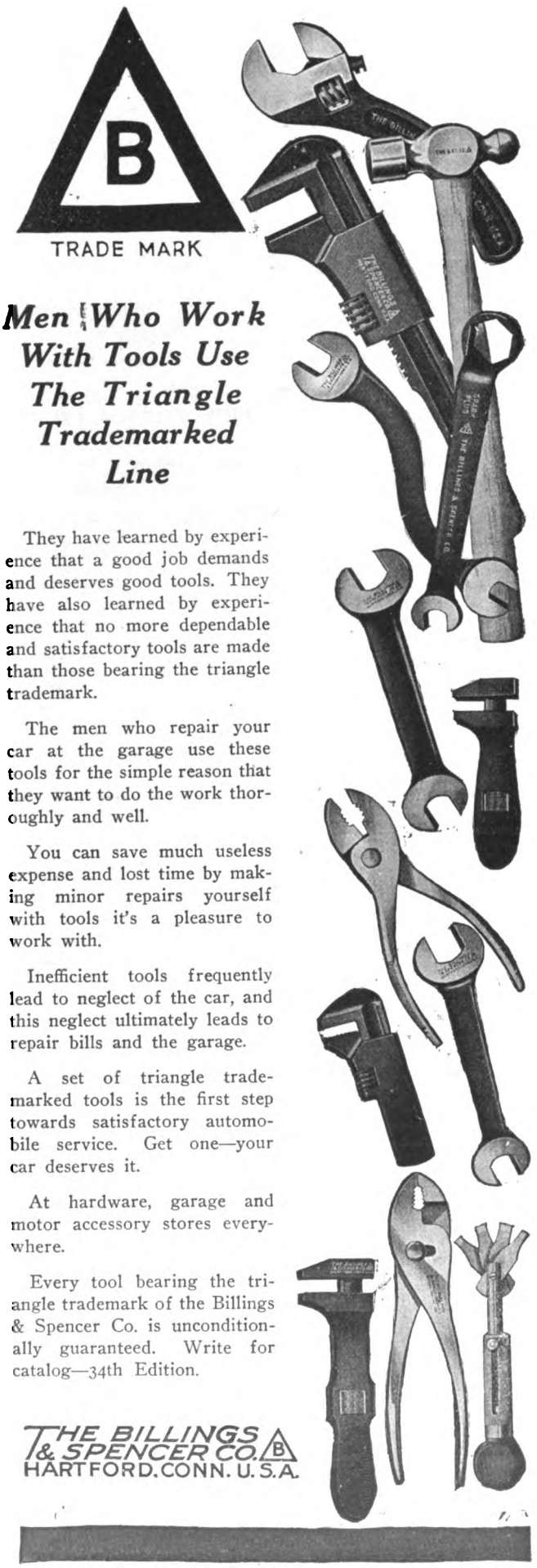
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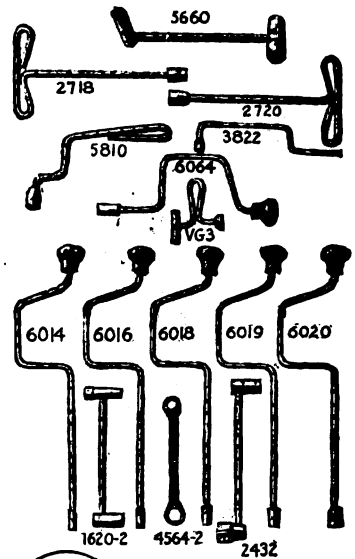
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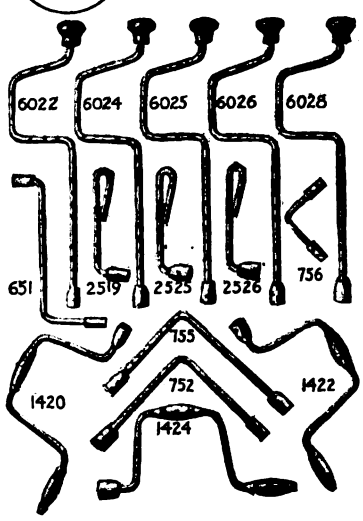
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Nº 30 GARAGE SERVICE SET



A WRENCH combination perfectly adapted for work on any motor car, with which time and labor cost to the customer may be economized, and the productiveness of the shop and its facilities largely increased.

These are special tools, designed after careful study of garage service, each serving a specific purpose and having qualities necessary for thoroughly good work.

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Offset Wrenches	13
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L-Wrenches	6
Special Wrenches	5
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Tee-Handle Wrenches	2
Total	39

The combination was made to fit all popular makes of cars—to work wherever particular type wrenches are necessary. Every condition that makes for economy and time saving has been anticipated and utility provided for.

With the No. 30 Garage Service Set you will have every wrench you will need. Your equipment will be standardized. The quality of work insured.

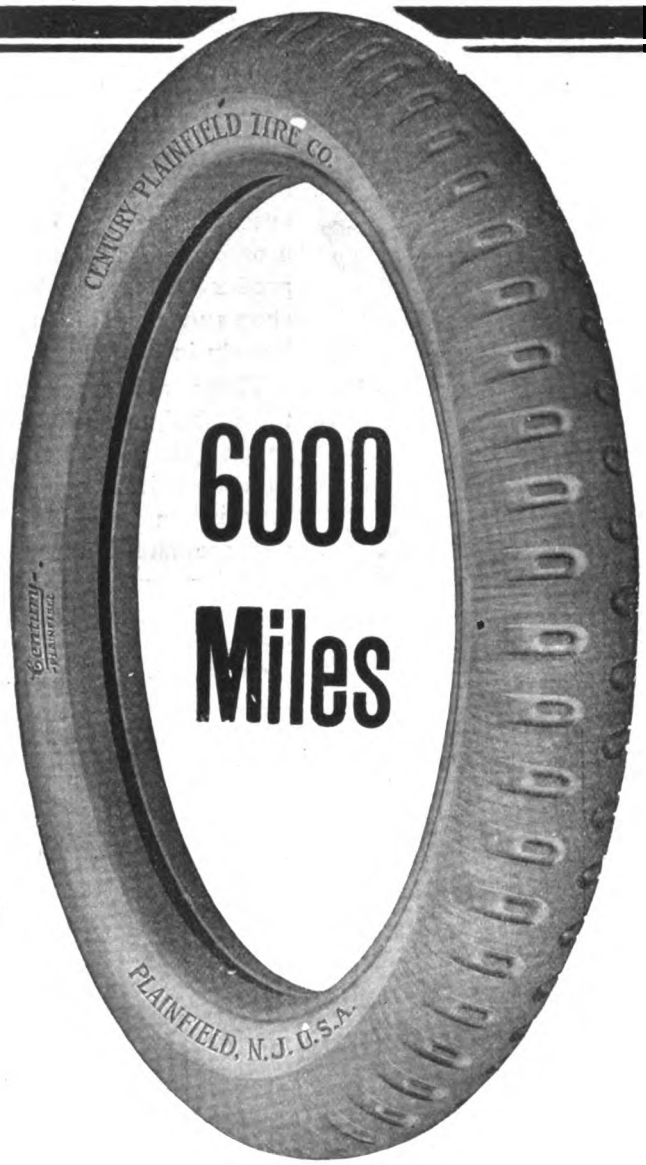
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The man who bought comes back—certainly—he's a booster, but better yet—his friends come, too.

Century-Plainfield popularity is founded on performance. They have an inbuilt capacity to negotiate extra miles. Under all conditions they give the very limit of wear.

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The very finest quality of materials in the world go into their makeup and these are combined and fashioned into shape by time-seasoned experts.

No whit of anything that would make for better tires has been neglected.

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CENTURY-PLAINFIELD TIRE CO.,

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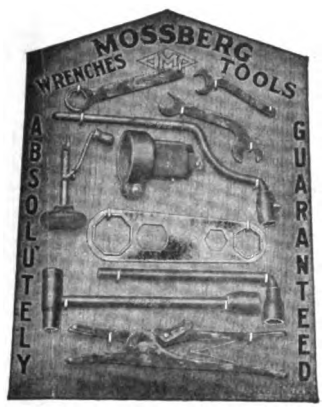
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Mossberg Wrenches and Tools are the essence of dependability—

GUARANTEED ABSOLUTELY

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$13.50

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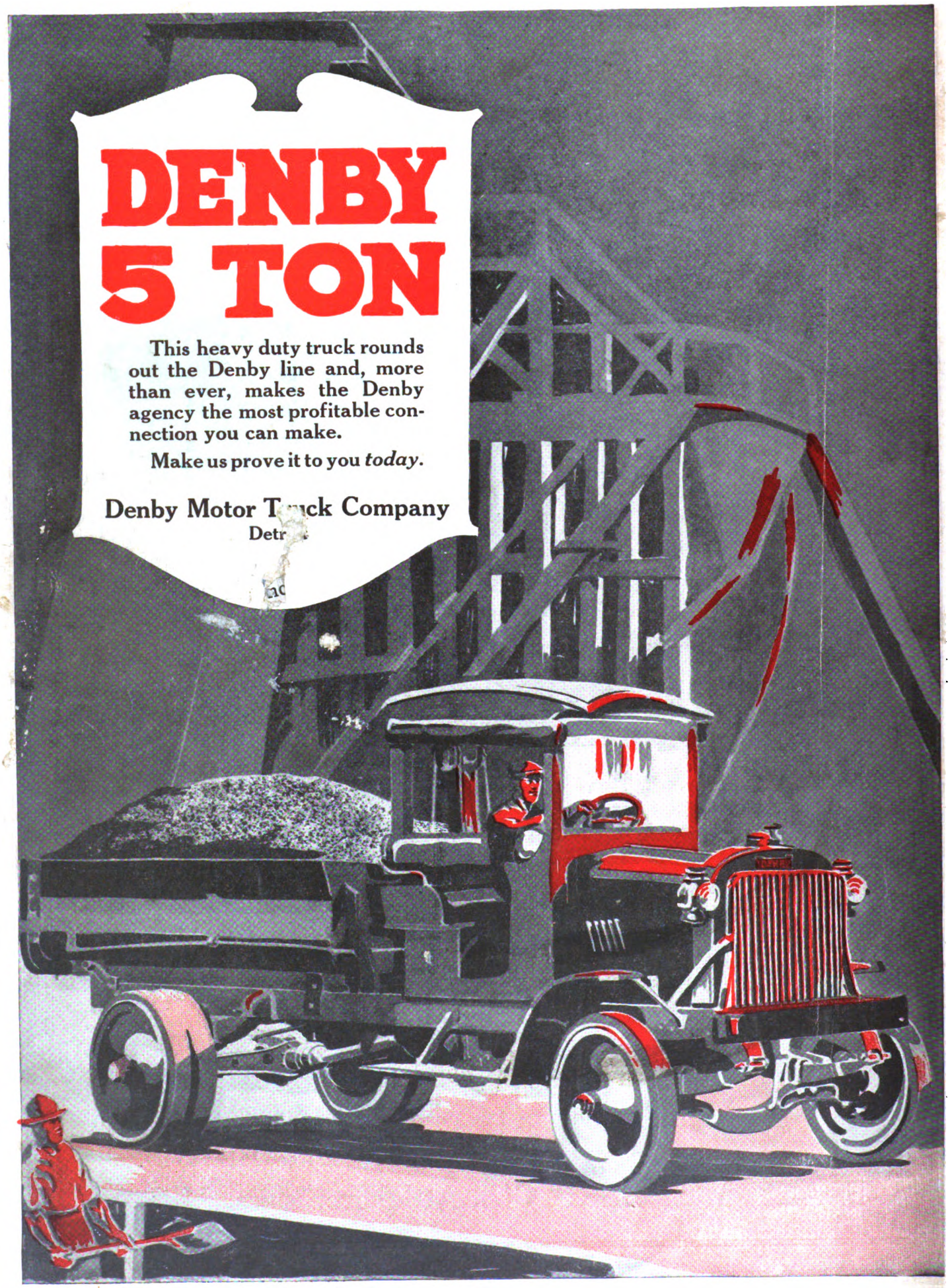
Reversible Ratchet Wrench—Offset Handle—Takedown Handle and Extension Bar — Pipe Wrench—Pliers—Five D.E. Wrenches, with milled openings 1/4" to 1"—Cotter Pin Puller—Universal Joint—Screw Driver Bits—Three Special Spark Plug Sockets and Thirty-four Guaranteed Pressed Steel Square and Hexagon Sockets, graduated by 32nds, from 5/16" to 1 9/32".

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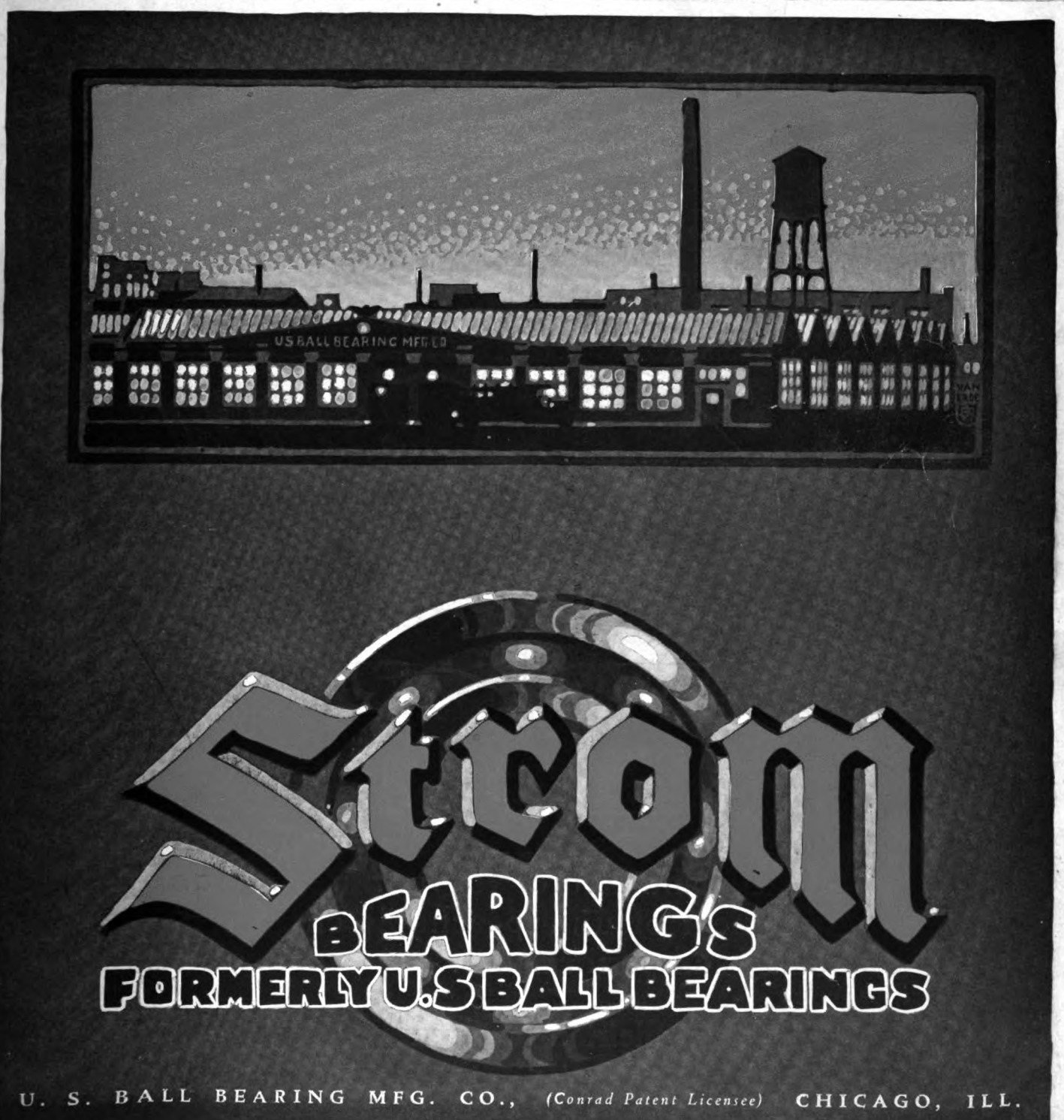
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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 3

New York, January 16, 1918

Twenty-five cents a copy
Two dollars a year



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ELGIN

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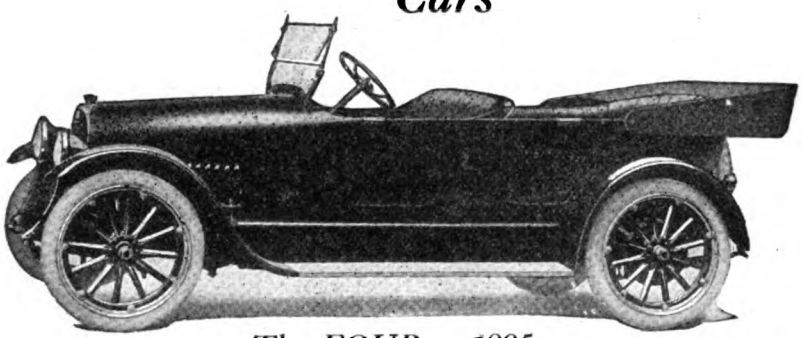
Factory—Elgin National Watch Company

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The New

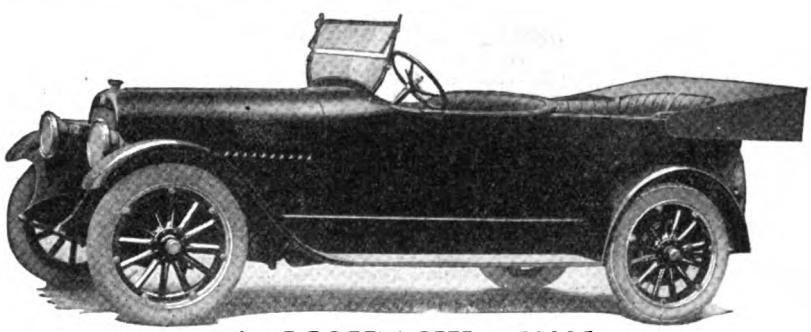
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Cars



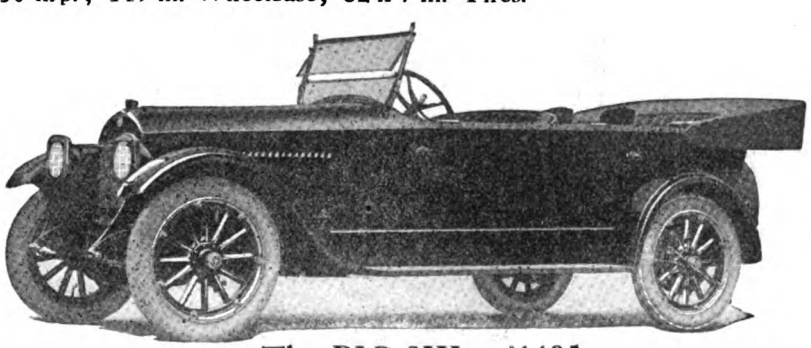
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BALL BEARINGS

In Tractor Service

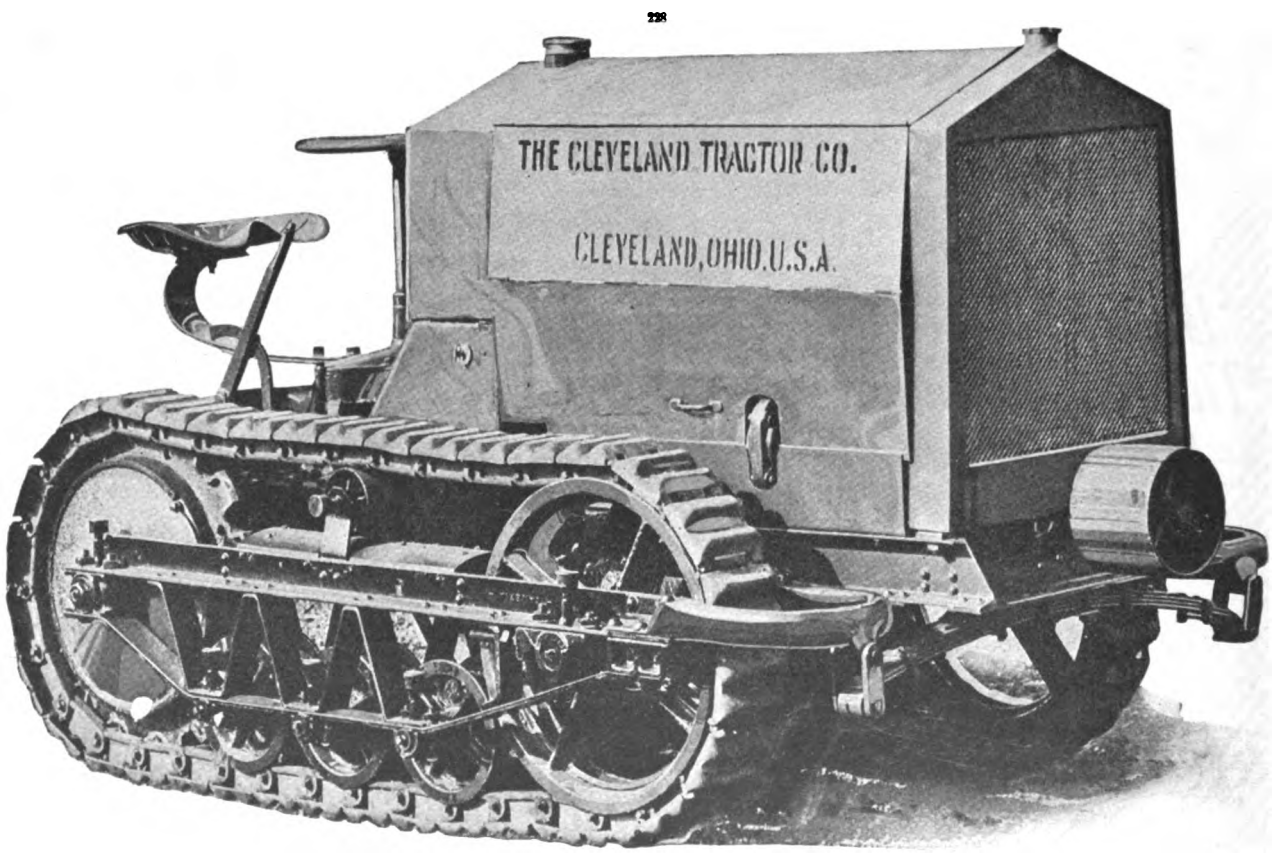
Gurney Ball Bearings are used in several well-known tractors because their large load capacity and endurance in severe service give reliable operation with small expense for lubrication and repairs, and because their low friction enables the tractor in which they are used to do more work on a gallon of fuel.

Nearly a hundred thousand Gurney Bearings were installed in tractors during 1917.

GURNEY BALL BEARING CO.

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JAMESTOWN, N. Y.



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For DEALERS, JOBBERS AND GARAGEMEN

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BALL BEARINGS

(Patented)



The highest speeds in car or truck—many times the speed in any other part—are carried by the magneto and lighting generator. At high car or truck speed the speed of these accessories may reach tremendous figures. Is further argument needed to demonstrate the vital necessity of speedability in ignition and lighting apparatus?

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THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK
Ball, Roller, Thrust and Combination Bearings

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IN-BUILT QUALITY · SELDEN · MOTOR TRUCKS

Massive construction—colossal strength—gigantic motive power—abundant speed in operation—proven power of endurance, with sufficient energy in reserve—these are the *in-built qualities* of SELDEN TRUCKS that give them the vitality to render continuous, profitable service to the user—uninterrupted service at low upkeep cost—the kind of service that brings repeat orders.

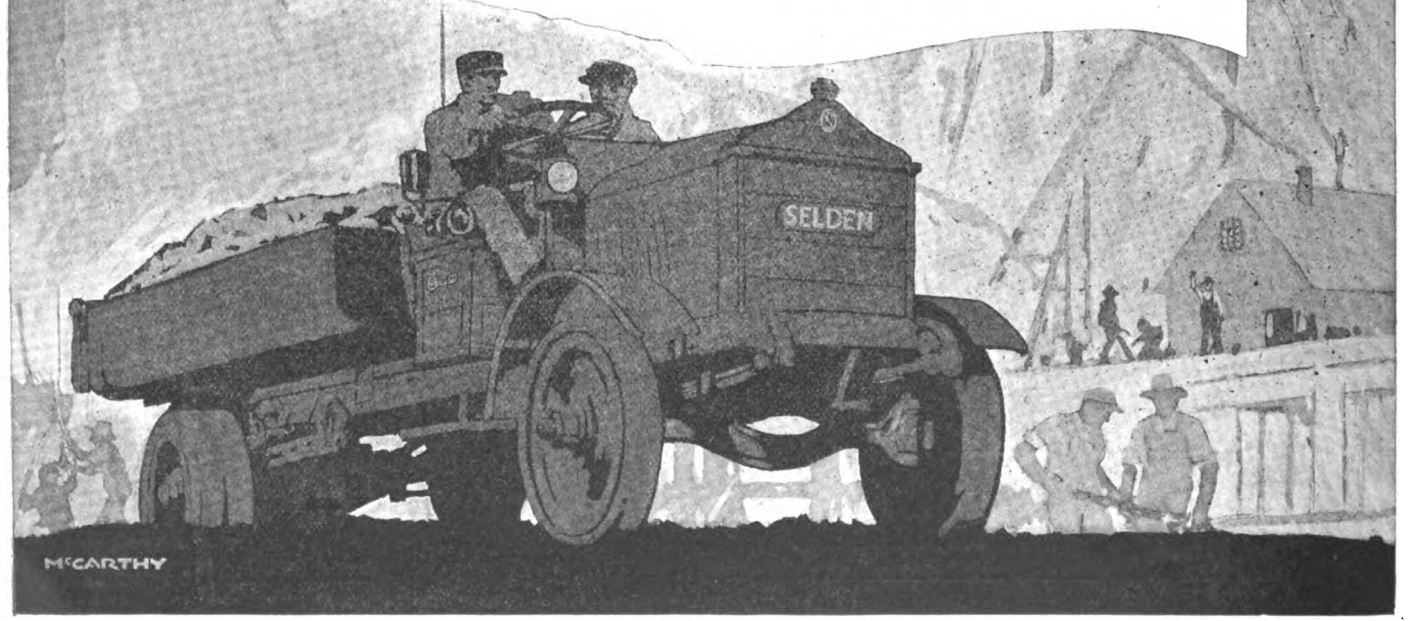
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Dealers: *There never was a time when a Selden agency was so valuable a possession to a dealer as it is to-day. All Selden dealers are doing a profitable business and building a reputation. Territory is being closed up fast. If Selden Trucks are not being sold in your territory, write at once for our proposition.*

Selden Truck Sales Company

Rochester, N. Y., U. S. A.



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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV New York, U. S. A., Wednesday, January 16, 1918 No. 3

Saw Wood!



More wood-sawing and less hysteria and stopping of activity are what are needed if the country is to be helped instead of hindered

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Car and Truck Drive-Aways Can Save the Country

Are You Ready for the Time the Government May Demand That All Vehicles Be Driven From Factories

SUPPOSE the railroad dictator should issue orders that no motor cars or motor trucks should be shipped by railroad trains to any part of the country.

Suppose the railroad dictator went further, and ruled that in order to conserve railroad transportation the shipment of spare parts and tires from automobile factories to dealers by railroad would be prohibited.

If you were then appointed dictator of motor car and motor truck and accessories for the shipments from the factory to the distributer and the dealer, what would be your method of analyzing the situation and arranging to meet this new order of affairs?

Such a Situation May Come

You would have a herculean task on hand, but perhaps it is not beyond the realm of common sense to imagine that such a situation might confront our industry within the next 6 months. Supposing it did, we should be prepared to handle it.

The government, with the object of relieving railroad congestion, is going to drive overland from the factories to seaports all of the standardized war trucks. Two experimental truck trains have already made the trip, one from Buffalo, the other from Detroit. Both trips were made in the severest weather, but they demonstrated the practicability of the work and the value to the War Department, as well as the training the drivers received.

If it is necessary for the government to drive its trucks overland, how much more necessary will it be for the motor-car and motor-truck makers to drive overland their vehicles that are for domestic sale.

There is no greater opportunity before the motor-car industry for demonstrating the imperatively essential nature of the vehicles than that which exists at present. *It is one of the big problems ahead of the dealers and distributers.*

All Vehicles Can Be Driven Away

It is not impossible to drive away nearly all of the motor cars to all parts of the country. Driving from the Detroit zone to New York has been under way for months, and one New York distributer is now organizing to drive fifty cars a day from his factory to Buffalo, where they will be stored, and driven to New York under more favorable road conditions.

It is quite easily possible that railroad embargoes may prevent the shipment of motor cars into New England, and that all New England cars may be unloaded at Albany, or some point nearer New York, and thence driven to the dealer and the ultimate consumer.

It is a long way to drive motor cars to San Francisco, but if a railroad shortage warranted, it might be possible to make greater use of the Mississippi and the Panama Canal. "Necessity is the mother of invention," and there is no telling what could be done, and done quickly, if it had to be done.

It is possible that in addition to driving motor cars and motor trucks overland that each car will have to carry a load in addition to the driver in charge of the vehicle. It may be necessary to carry a supply of spare tires, which should not be impossible, as the great zone of tire production is located close to the zone of motor-car production.

It is quite possible that each motor car leaving its factory might carry a quota of spare parts, thereby relieving the railroads and the express companies of this tax on their facilities.

May Modify Shipping Customs

It is highly possible that motor-truck makers will have to modify their existing customs of shipping trucks without bodies, which has been convenient while there are railroad cars for such shipment.

It is too much to expect that in these days of railroad-car shortage that motor trucks should be shipped when there is not enough shipping capacity for coal and foods. Each truck maker can build a standard platform for the truck. Where trucks are sold before leaving the factory the dimensions of the platform can be furnished through the dealer to the manufacturer.

With this done, an improvised body can be fitted and the truck leave the factory with a load of useful merchandise. The load might be spares for the dealer. It might be tires, or it might be war merchandise.

A timely suggestion has been made in Washington that motor trucks being driven from the factory to seaboard might carry supplies for shipbuilding, particularly if these ship parts are made in the zone of the Great Lakes, where many of them are certain to be manufactured. Carrying these parts would be performing one of the greatest services to the nation, because there is no greater need than that for shipping.

Trucks Might Carry Freight

It is possible that some of the trucks leaving the Detroit zone could be loaded with supplies of chemicals from the big drug companies of that area, and which are so needed by our armies abroad.

It may be argued that the New York, the Baltimore, the Boston, or the Philadelphia business men purchasing the truck would object to paying the price when his truck is being driven 700 miles before being turned over to him. He might demand a reduction in price.

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Go to the Chicago Show

Should he demand such a reduction it would be possible to arrange with the government whereby it would pay for its merchandise transported, as well as the truck fuel used, so that some adjustment could be made with the purchaser. Where the dealer used the truck to bring his own spares he could naturally afford to make an adjustment equal to the economy so effected.

Would Be No Trouble with Buyers

As to the possibility of the buyer refusing to accept a motor truck which was driven overland from the factory, there is not the slightest danger on that score. He will be so seriously in need of the truck that he will be glad to get it.

There is another brighter side to this question. Driving the truck overland from the factory to seaport affords an excellent opportunity for the purchaser to get his drivers familiarized with the truck.

If he is purchasing a new machine he has the opportunity of having the driver visit the factory for a week, perhaps previous to the date of the driveaway. This prepares the driver for handling the truck. He has the best opportunity available of studying its construction.

The factory in turn has the best opportunity of judging as to the ability of the driver, and his capacity for giving the truck that service which it needs.

Trucks Would Not Be Abused

With trucks driven away, and truck trains under the supervision of a factory mechanic, there is little opportunity for the trucks being abused. The factory expert can check the lubrication every half day, or oftener. He can check ignition, adjust carburetion, and make any other necessary adjustments.

The drive-away should result in a very careful testing out of the truck, so that when it arrives at its destination it has gone through its testing trials, and is perhaps in a better condition than if left alone in the hands of a new driver for a similar period.

This may be a Utopian vision of a situation which we will have to face, but it is more preferable to look at the silver lining than at the darkest aspect of the problem.

The drive-away situation which the dealers are facing offers the greatest opportunity for co-operation and organization that could be wished for.

Dealer Organizations Could Direct Work

Take an area like New England, which is a unit of territory which is perhaps more closely unified in a business sense than any other area. It is also blessed with an exceptionally good and well co-ordinated highway system.

With such a unity why should not every motor car driven from the factory into New England be under the direction of an organization representing the New England dealers? This organization would have to establish a road organization similar to the dispatching system on a railroad. It could not hope to bring all of the motor cars needed over one highway. They would have to be routed by different roads. It would be impossible to find garages along the roads capable of accommodating all the machines.

It might be necessary to arrange night camping grounds at suitable points and maintain commissary departments en route. It might be necessary to establish greater facilities for serving gasoline for the great numbers of cars.

Take any other unified section of the country, and there is an opportunity for the dealers to co-operate in this problem that is ahead. Think of the tens of thousands of motor cars that would have to leave the Detroit zone in the Chicago direction. It would be necessary, and it would be good business, to have several paralleling highways improved so that the great streams of traffic can be divided and the roads not overcrowded. It will be necessary to widen certain highways. It will be necessary to establish one-way highways. It will be necessary to install gasoline stations, camping sites, and a great many other similar necessities.

Great Need Is for Co-ordination

It would be highly inefficient if this great highway transportation scheme were handled separately by the different factories. The problem is so stupendous that it calls for unified action. It calls for standardized action. Buick cannot go out and establish its scheme without due consideration for Studebaker or Overland or Ford or Reo. There must be a general plan. There must be a general get-together. There must be a great system outlined.

In addition to the necessity for co-ordinated action in different sections of the country, such as New England, the Pennsylvania area, the Twin City area, the Kansas City, St. Louis and the Southeast area, there exists the opportunity for national action. Here is where a national dealers' association could take hold.

Task Should Be Considered Now

Should an exigency such as suggested confront the industry it would call for a stupendous organization such as outlined. To build up such an organization requires time. It is not the work of a day or a week or a month, but one that will require several months to get all of the necessary machinery running in good order.

Now is the time to look ahead on such a problem. The selling season is ahead. The season for the intensified use of the motor car is ahead. There will be fewer people to handle the motor-car merchandising end this year than last. New persons must be trained into the work.

Necessary organizations within dealers and within factories and within communities must be built up.

This is the opportune time to draft the scheme of organization. It is the opportune time to school the different persons into the organizations. *Now, and not in the selling season, is the time to begin on this task.*

Expansion of Business Is Imperative

Go to the Chicago Show

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Canada's Message

To the Dealers of

America's Great West

Who Are Going to the

Chicago Show

By Thomas C. Kirby

THE one thing that has made Canada a big power in the war is that her business men have not lost heart.

When the war broke out in August, 1914, our country was at once plunged into the same period of rumor, hysteria and excitement that the United States is going through now.

This lasted for nearly a year, but we finally passed through it, as I believe America will pass through it, and to-day Canada is having the biggest business she has ever had. She is contributing large sums of money to the support of the families of soldiers and has in the field overseas an army that is extremely large in proportion to her population.

It has been possible for her to do these things ONLY *because the business men of Canada acquired a fighting spirit, insisted upon a policy of expansion rather than restriction, and have gone up against this big task with strong hearts and great courage.*

The motor car men have been a large factor in contributing to this healthy and optimistic condition. They have helped to save their own country—and the business men, and especially the motor car men of the United States, have before them a big opportunity to help the United States be successful in the great war.

War Did Not Stop Shows

Perhaps it will illustrate the attitude and spirit of the motor car men if I tell you how the dealers of Montreal have held shows every year since the war broke out, and how to-day Montreal is the only city in the British empire that is holding a motor car exposition.

The result is that in our section the motor car business and other business is prosperous and WE ARE AT THE SAME TIME MAKING HEAVY CONTRIBUTIONS TO WAR WORK.

When the war broke out we had plans for using a Government building and armory, for our show, but just as we were getting ready to use it the military authorities came along and told us we could not have it. The army had to have the building.



THOMAS C. KIRBY
Secretary of the Montreal Automobile Trade Association

Under a policy of curtailment we would have ceased our activities in order that war work might have its way, but we believe in the policy of expansion and so determined that, while the war must have its way, the motor car show could have its way too. So we began looking around for another building.

We found the Ford building the first year and held the show in that. The building had just been completed and was not yet filled with machinery.

The second year we could not get the Ford building and we began to search for another building. *We were determined that we should have a motor car show and that every effort would be made to keep up business.*

Personally I combed the city of Montreal with a fine toothed comb. I hunted everywhere, but nowhere could I find the building that was adequate for a motor car exhibition.

His Wife Helped Him

One Saturday the directors held a meeting and asked me what I had found. They were hopeful that I had located a building. I told them I had not been able to find anything, and some of them said they guessed perhaps we would have to give up our show, but I asked them to give me another chance and to hold another meeting on Monday, at which I would report.

All day Sunday I drove around hunting for a building. I had just about given up hope of anything when, as we were driving through the downtown section, my good wife, who was with me, said, as we passed a large department store: "There is the building where you ought to hold your motor car show." Her remark proved an inspiration to me and I determined to see the store people the next morning.

I saw them and made arrangements for securing the basement for our show.

But after I had made arrangements

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for the lease we were still up against even greater problems. There was no way in which the cars could be put into the basement.

After investigation I found we would have to chop a hole in the back wall of the store and build a ramp down to this lower floor.

We built a ramp at 55 degrees down which to run the cars. After we had done this we found that we could not let the cars down by hand because the weight would be too great and they might get away from us and do damage, so we had to build a hand winch out back of the store and every car was let down that 55-degree incline with this winch.

It took a whole hour for every car, but we filled the basement and WE HAD OUR MOTOR CAR SHOW.

The next year we managed to secure the third floor of the store—and again we were up against trouble. There was no way of getting the cars up to the third floor, so we had to build a great big freight elevator outside the store at a cost of $4,000, and on the third floor, where we let the cars in, we had to get an architect and have a big hole cut in the outside wall of the building.

We ran the cars up and down this elevator and at the end of the show had to take the whole thing down again and plug up the hole in the wall.

Shows Have Stimulated Business

All of this cost us money, *but we were able to hold our show, and we regard the fact that we have never passed up a show since the war began as one of the stimulating factors that have made our business what it has been during the past years and* IS TO BE.

To-day there are rumors abroad in Canada that there is to be a gasoline shortage in the Dominion, and that there is to be less importation of cars. This we believe to be untrue and our fixed job now is to convince the people that there is no occasion for alarm or hysteria.

We have had something to fight every step of the way, but we have kept right on fighting and the results have been excellent. Our fight has been against the faint-hearted ones among our own people. It has not been against our Government or anything of that kind.

We have been able to see the wise course that should be pursued by business and *our greatest task has been to show the people of the Dominion that they must not lose heart, that business must be kept going if the war were to be made successful, and that all these ideas of false economies and wearing worn-out clothes and old shirts is going to do more harm to our country than any other course we could follow.*

I understand that in the period through which America is now passing there are many who are beset to know which way to turn as regards opinion and policy. There are those who believe that business should be curtailed, that there should be a shrinking of activities and that everything should be directed towards "WINNING THE WAR."



WILLIAM JENNINGS

Secretary of the Montreal Automobile Trade Association

As far as "winning the war" is concerned, they are correct. Everything *should be done* toward the winning of the war, *but the curtailment of business and the slowing down of industry and niggardly economy — which consists mostly of sack cloth and ashes—is* NOT HELPING WIN THE WAR.

Sometimes one has to be a pretty courageous man to stand up and face the strong sentiment that exists against the sale of what some people call luxuries and non-essentials, *but it is the measure of a man's strength that he is able to do these things.*

If we cut down the business in everything except guns and ammunition we are taking the very life blood out of our country and we cannot win the war or even win a living for those of us who have to stay at home. We must have greater production, greater efforts, bigger business, bigger minds and stronger hearts if the war is ever going to be anything except a mighty victory for the German Kaiser.

And so I say to the dealers from America's Great West, who are about to go to the noted car show in Chicago: "Go to this show with confidence in your hearts that you are a part of one of the most essential industries in the world, that the one great way all business can serve its country is to KEEP RIGHT ON GOING and that there is no room at this time and in so great and powerful a nation for the man whose sole thought is that he should lie down.

Remember that it takes a big man for a big job.

Remember that you have a big country and your big country has tackled a big job, but your big country is no bigger in this emergency than each individual.

A Few Facts About Canada

By William Jennings

President of the Montreal Automobile Company

Increase of automobiles in Canada, 1916 over 1915	33,000
Increase of automobiles in Canada, 1917 over 1916	59,600
Estimated increase of automobiles in Canada, 1918 over 1917	85,000

At an average value of $1000 per car, Canada in 1918 offers to the automobile industries of the country a market verging upon a value of $85,000,000.

The number of automobiles registered in Canada during the past three years are as follows: 1915, 83,147; 1916, 116,388; 1917, 176,000. In other words, 1917 shows approximately an increase of 100 per cent over 1915 and 50 per cent over 1916.

The increase of 1917 over 1916 is 59,600 cars for a period of nine months (not twelve) with three months of the year to come, and still going strong.

These figures, for the three years of war-time, tell something of the growth and prosperity of Canada and of the wonderful market it offers for the development and expansion of the automobile industry.

The figures quoted above are for cars alone. Consider, in conjunction with these, the demand created thereby for oils, gasoline, tires and accessories, and you will grasp the significance of the conditions which Canada offers as a market for automobiles and supplies.

Montreal's 1918 automobile show takes place January 19 to 26, and we look upon it as the opening of the biggest business year we have ever had.

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Keep the Home Fires Burning

And It Takes Firewood to Do It

By Ray W. Sherman

REILLY, who sold the Sennett in Callawassa and had been at it for a great many years, sat in his office going over the morning mail. Tommy Trumbull, his sales manager, was getting a day's work all lined up and in good shape, when Benny Lawson, one of the junior salesmen, said: "Gee, but ain't business rotten!"

"What do you mean, rotten?" said Tommy.

"Oh," said Benny, "you can't sell anything, nobody wants to buy anything—and I don't know, but it seems to me that we ought not to be trying to take money away from people by selling them things like this. What is everything going to come to unless everybody saves everything he has for the war and—oh, you know what I mean!"

"Business looks pretty good to me," said Tommy.

"And it looks pretty good to me, too," said Reilly, as he turned around and looked at the young salesman.

"Do you really mean what you say?" Reilly asked Benny.

"Yes, honestly, I do. I've thought it all over and I can't see that there is any reason why we should keep on doing business."

Must Work Harder Than Ever

"Well, if everybody felt that way," said Reilly, "there wouldn't be any business and it wouldn't be long before there wouldn't be any war. You are just like a lot of other people who have gotten the wrong sort of stuff into their systems, but I want to tell you that we've got to keep on harder than ever at business if we are to have any sort of active prosecution of the war we are engaged in. Have you ever heard that old war song they sing up in Canada about keeping the home fires burning?"

"Yes," said Benny.

"Well," said Reilly, "did you ever think that it takes something besides sentiment and Government bonds to keep a home fire burning? Do you realize that the people who have stayed at home are going to need just as much money as they ever needed—and more—to buy things to eat, clothes to wear and all the necessities of life that they must have, and did you ever stop to consider what would happen if the people whom the soldiers have left behind were not able to keep on living and buying things to eat?"

"Yes, I know," said Benny, "but what I mean is that people shouldn't buy things that aren't clothes—and things in that class."

"Oh! is that so!" said Reilly. "Well, you just stop and take another think. Do you remember young George Henderson, the mechanic, who went out of our shop and enlisted in the army? I suppose you happen to know that he has a mother and two sisters. Both the girls work and between them all they run the home. One of the girls works in a department store and the other one is a cashier in a restaurant down town.

"Supposing the department store business falls off; how is one of these girls going to hold her job, and if everybody quits eating in restaurants of the kind where this girl works and goes back home on a rye bread basis, what is she going to do for a job, and if both of these girls loose their jobs, how are they going to keep the home fire burning for the lad who has gone to war?

More Common Sense—Less Sentiment

"We need common sense a lot more than sentiment in this stuff, Benny, and there is a great need for someone to institute a very active propaganda to show a lot of us just where we would get off if we all went at this restriction thing in the way some of us would like to go at it.

"Supposing that we quit selling automobiles, what would you do for a job? You have a wife and a couple of kids and they have got to eat and have clothes just the same as ever, but I want to ask you again, what would you do for a job if we quit selling automobiles?"

This was a problem to Benny and he didn't have any answer to make.

"Also we have a lot of men here in our organization, and if we shut up shop and quit the car business, what would become of them? I suppose some people would say that they would be released then to go into war work. But can't you imagine the 40 men in our repairshop going out to-morrow and getting war jobs that would buy bread and butter for them?

"Supposing we threw you out of here to-morrow and told you that we weren't going to sell any more cars. Where would you go and what job would you get and what could you do? Some time there may be an opportunity for you to get into work that is directly connected with the Government, but until that time comes what would you do without a job? Why you'd starve to death.

Must Protect Those Left Behind

"The boys who have gone to war all expect to come back some day, and they hope that in the meantime their going will not have proven a hardship upon those they have left behind. I suppose the boy from our shop who has the sister in the department store and the other in the restaurant hopes the store and restaurant will be able to keep on doing business so that no hardship will fall upon the family he has left at home, but if you had your way, and no one would buy anything from these department stores except shoes and shirts and those things and anyone who had any bread and potatoes to eat at home would never go near a restaurant, both these girls would be thrown out of their jobs and it might be some time before they could get other jobs. What do you think would happen?

"The same thing applies to every other line of business activity. If people cease to patronize certain lines of activity they will automatically curtail themselves and one by one and degree by degree the people who are connected with those businesses will find other employment, but for you to go round and preach this short-sighted policy of yours would bring about nothing except a calamity.

"You must remember that, no matter how actively we prosecute the war, only a small percentage of our population can be actively engaged in work that is directly concerned with the war. Not all of us can go to the trenches and not all of us can be used in the manufacture of munitions. So don't you see that the rest of us have got to live some way and we must work at something that isn't directly concerned with the prosecution of the war, although *everything that we do is more closely related to the war than you might suspect.*

"The men who are engaged in manufacturing shells in a munition factory have to have clothing. The people who are manufacturing clothing have to have other necessities. They may even want here and there a luxury and I honestly believe they are entitled to it if they have the money to buy it.

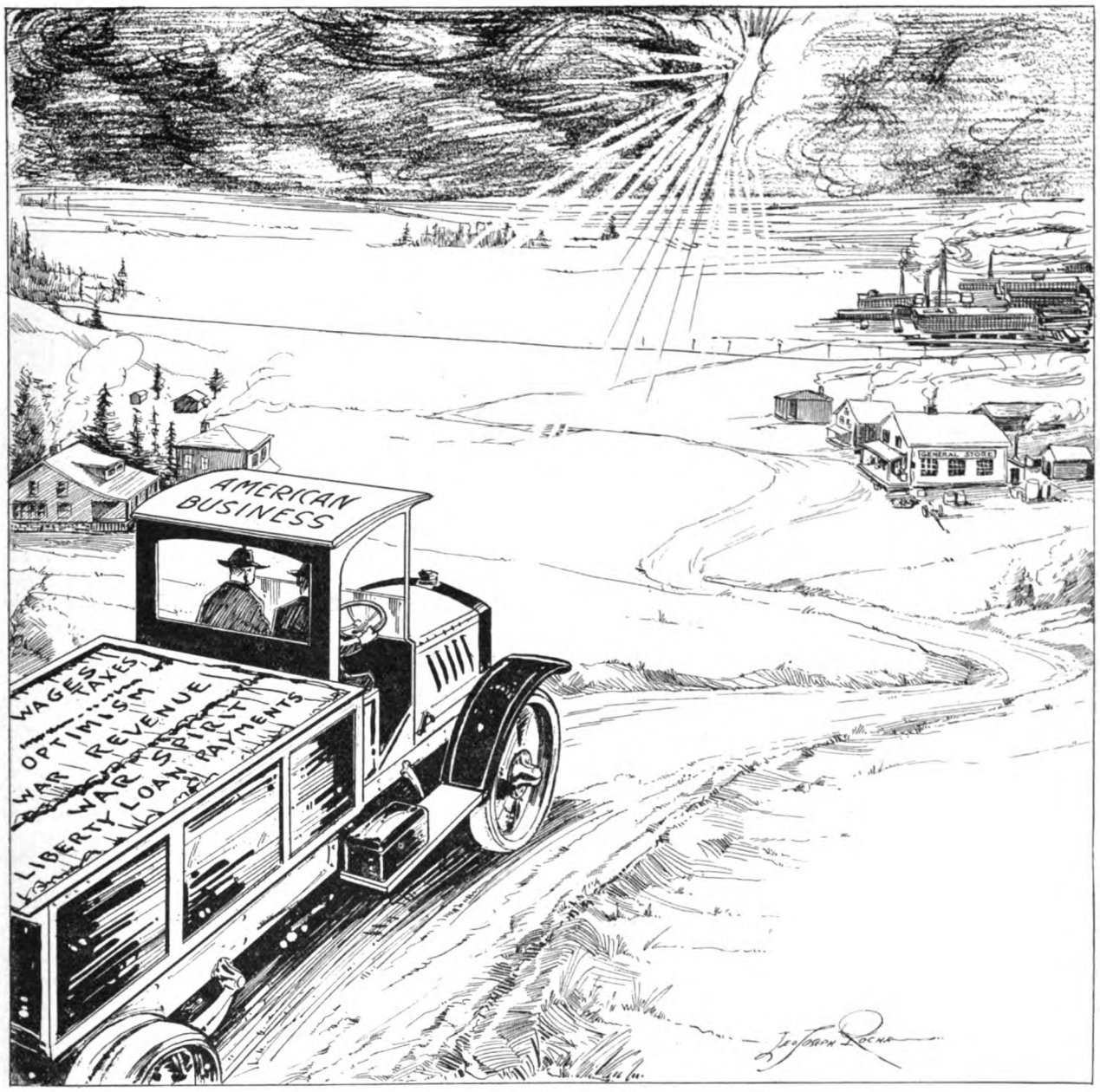
All Industries Are Independent

"Everybody wants something that somebody else makes and so you see one thing leads to another and our entire business and industrial fabric is so closely hitched together that you can't hit it in one spot without affecting it all the way through. Furthermore, you probably have in your mind the idea that the motor car is a luxury, but I wish you would go down town and pick up the first car you find on the street and tell the man that he chouldn't use it any more, and see what a holler he would put up.

"Only the other day we had a terrible snow storm here in town and the street car system went to pieces. The street car people said they fell down, for one reason, because all those who owned cars couldn't get them out and run them and

(*Continued on page* 61)

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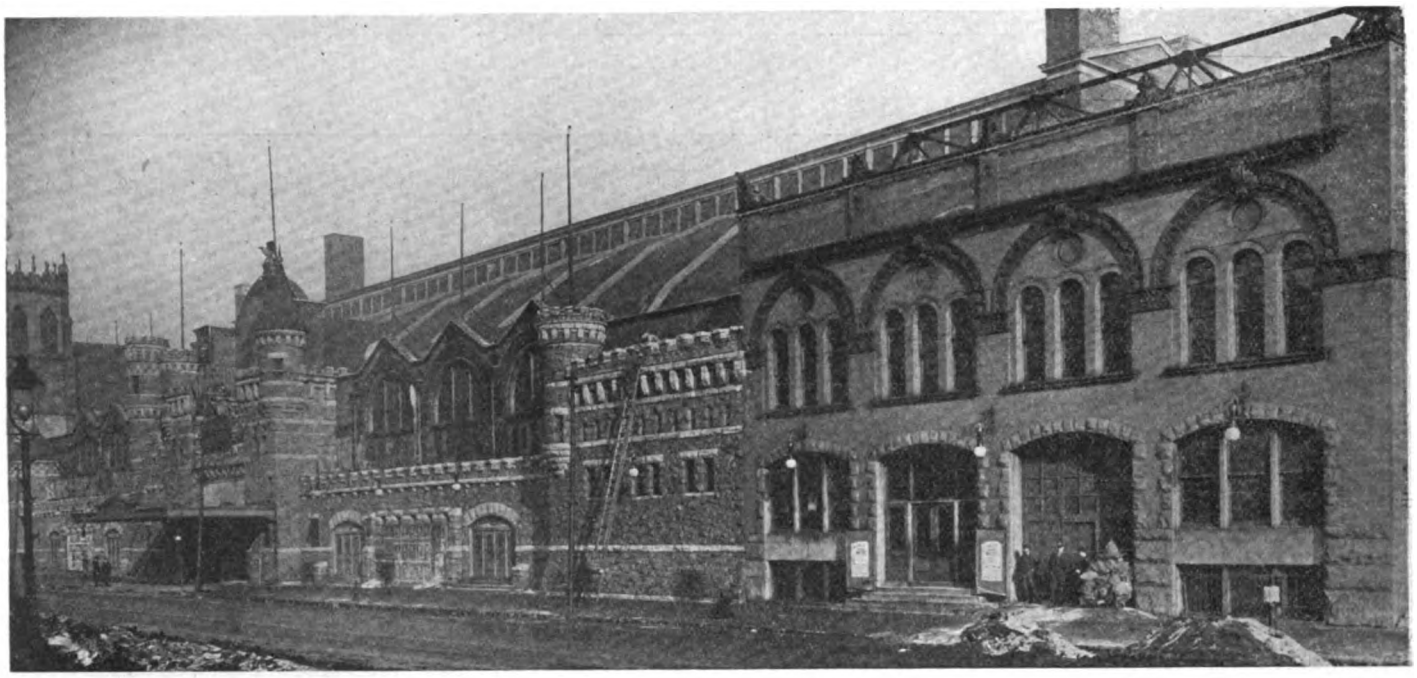
Keep the home fires burning, while your hearts are yearning;

Though your lads are far away they dream of home.

There's a silver lining through the dark cloud shining;

Turn the dark cloud inside out till the boys come home.

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Here's the Coliseum in Chicago, where nearly all the Chicago show is held; what is not housed here will be in the Annex and the First Regiment Armory

On To Chicago!

It's the Next Big Event on the Show Calendar and the Greatest of All Dealer Gatherings

ON to the Chicago show! It's the next big thing on the calendar. What promises to be the greatest of all dealer gatherings will start to write itself into motor history when the doors of the Coliseum, not to mention the Annex and the First Regiment Armory, are thrown open on Jan. 26 to remain open until Saturday night, Feb. 2.

It will be Chicago's eighteenth annual exhibition. And as usual it will reveal a lot of products of Western manufacturers who never exhibit at the New York show. Also it will be a greater gathering place of dealers than the Grand Central Palace event, because it always has been.

Chicago stages the business show of the year. The New York show is a social function compared with it. Dealers flock to the Coliseum from all over the great West. Last year more than 3000 of them registered. This year there will be that number at least, and perhaps more.

This year dealers will have additional reasons for flocking to the show. The farmer to whom the Western dealer sells the bulk of his allotment has more money than he ever had before. Crops were good last year and prices have hit new high levels. The farmer is a better prospect now than he ever was.

The New York show has revealed the cream of the new cars and accessories; but there will still be a whole lot that is new at Chicago. Nearly a score of accessory makers who were not in the Palace have booked space for Chicago and there will be half a dozen makes of cars revealed for the first time. Last year there were 92 different makes of cars on view in the Coliseum, Annex and Armory. This year there will only be one less. The list of accessory exhibitors is about the same this year as it was last.

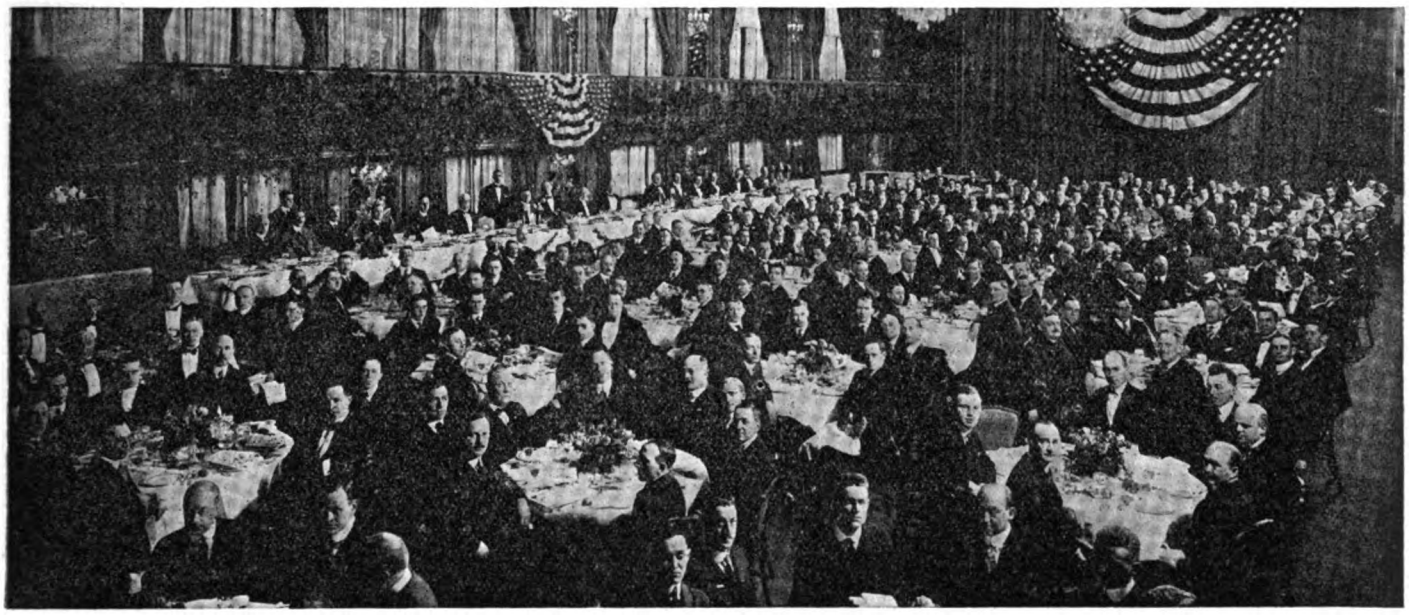
Among the new cars are the Comet, Pan-American, Glide, Dorris, Dixie, Hackett, Maibohm and Stephens.

The accessory list contains such names as: Continental Motor Co., Detroit; Edison Storage Battery Co., Orange, N. J.; Imperial Brass Mfg. Co., Chicago; Vesta Accumulator Co., Chicago; Wagner Specialty Co., Chicago; Warner Gear Co., Muncie; Waukesha Motor Co., Waukesha; Johnson Automobile Lock Co., Chicago; Arthur C. Mason, Paterson, N. J.; Ogden Mfg. Co., Plymouth, Ind.; Sipp Machine Co., Paterson, N. J.; Syracuse Wrench Co., Syracuse, N. Y.; Tobey Polish Co., Chicago; Tuthill Spring Co., Chicago; Wales-Adamson Co., Chicago.

These will be strong drawing cards for visiting dealers, but the really big drawing card is the good fellowship which prevails. The Chicago show is the handclasp show; it is the place where old friendships are renewed; where the dealer from the Pacific Coast greets the dealer from the East and the two of them share the hospitality of the Middle West.

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Where Dealers Gathered During Show Week

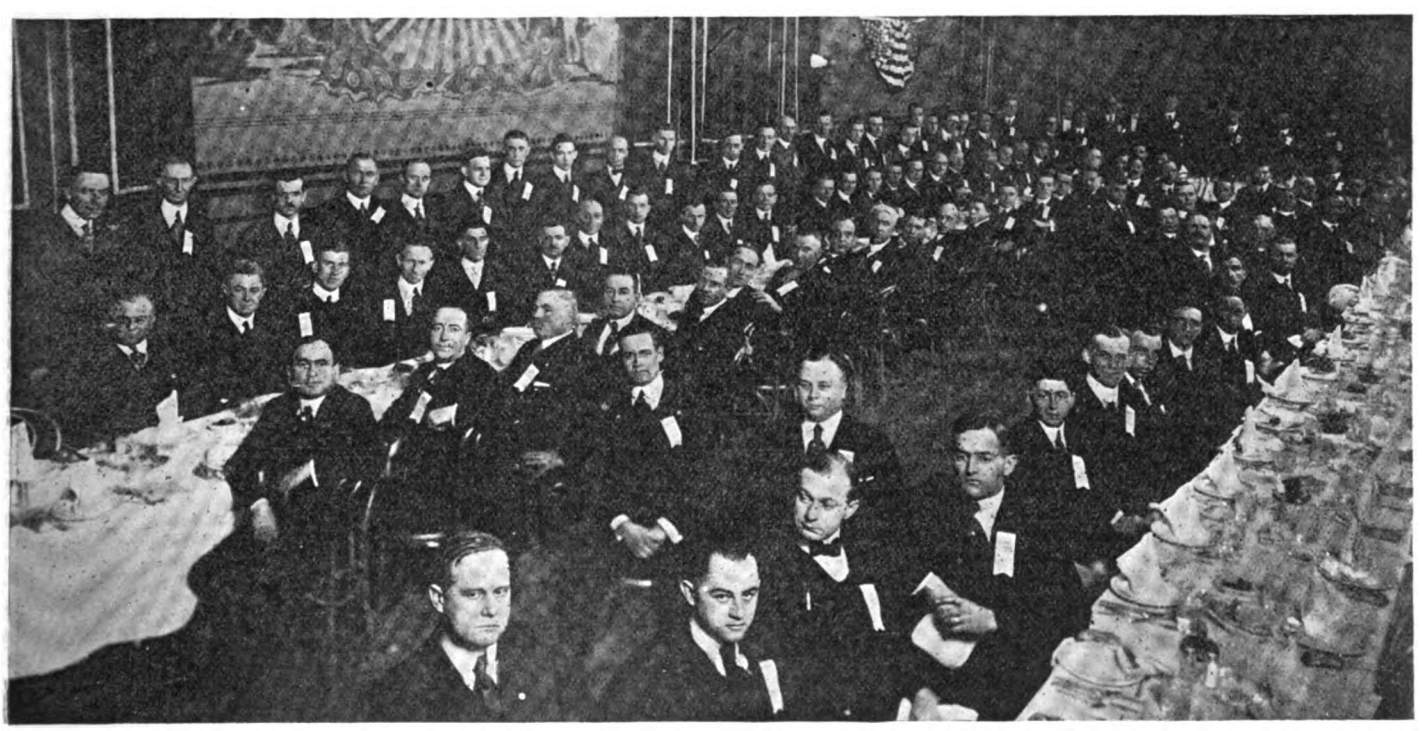


Dealers and Distributers of the Maxwell-Chalmers Organization

NEW YORK, Jan. 12—"Every dollar must be made to work," said Isaac F. Marcosson at the Chalmers-Maxwell dinner at the Biltmore last night. "Thrift may become a vice instead of a virtue," he added, in speaking of the now famous gospel of the ragged overcoat being a badge of honor, for, he said, if the wearer of the coat caught cold he had done damage and not good.

Edmund J. Cattell, statistician, of Philadelphia, said he believed in optimism and that we should "use the telescope more and the microscope less." He cited the motor car as one of the means the business man has of keeping efficient.

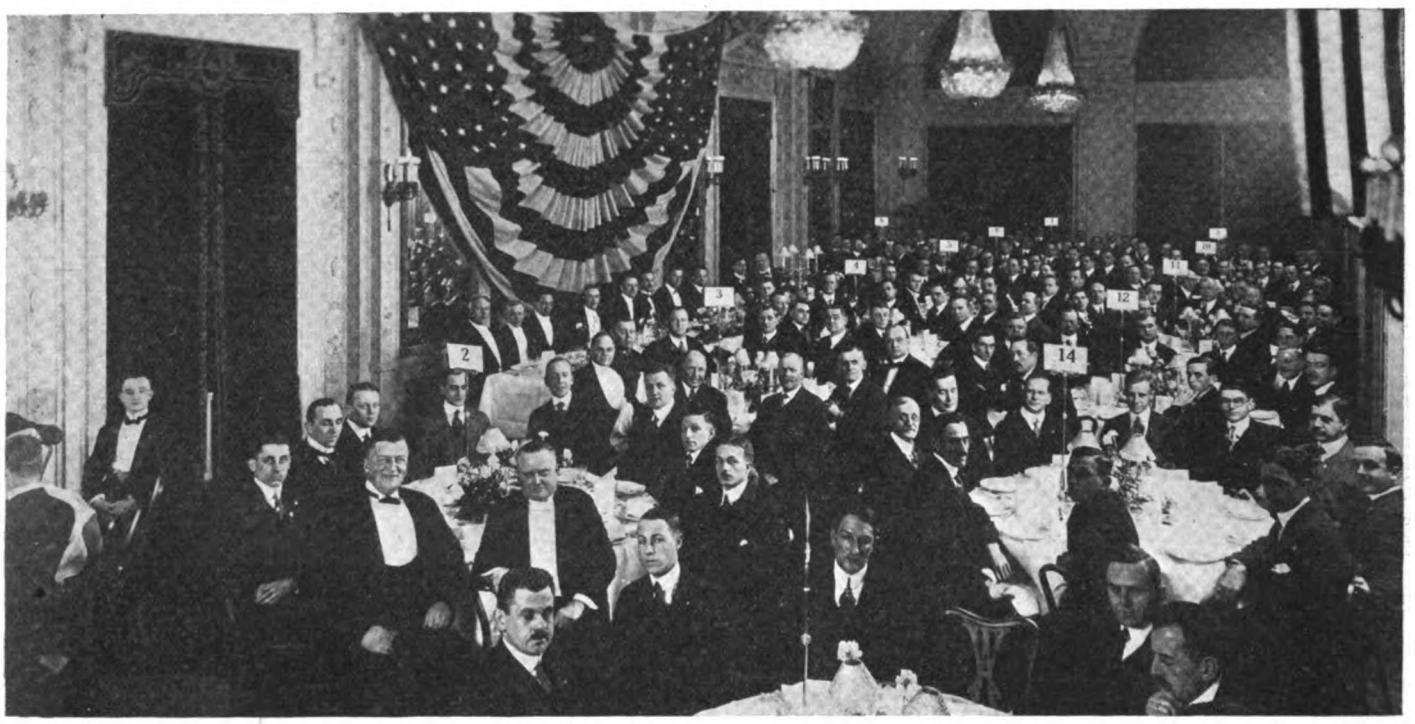
Arthur Brisbane, editor of the New York Journal, spoke of the absurdity of calling the motor car a "pleasure car." He said one might just as well say "pleasure" feet, or "pleasure" wings of a bird. Brisbane said the war would be won by thinkers. Herbert Kauffman also spoke.



Banquet of the Cutting-Larson Co., New York Oldsmobile Dealer

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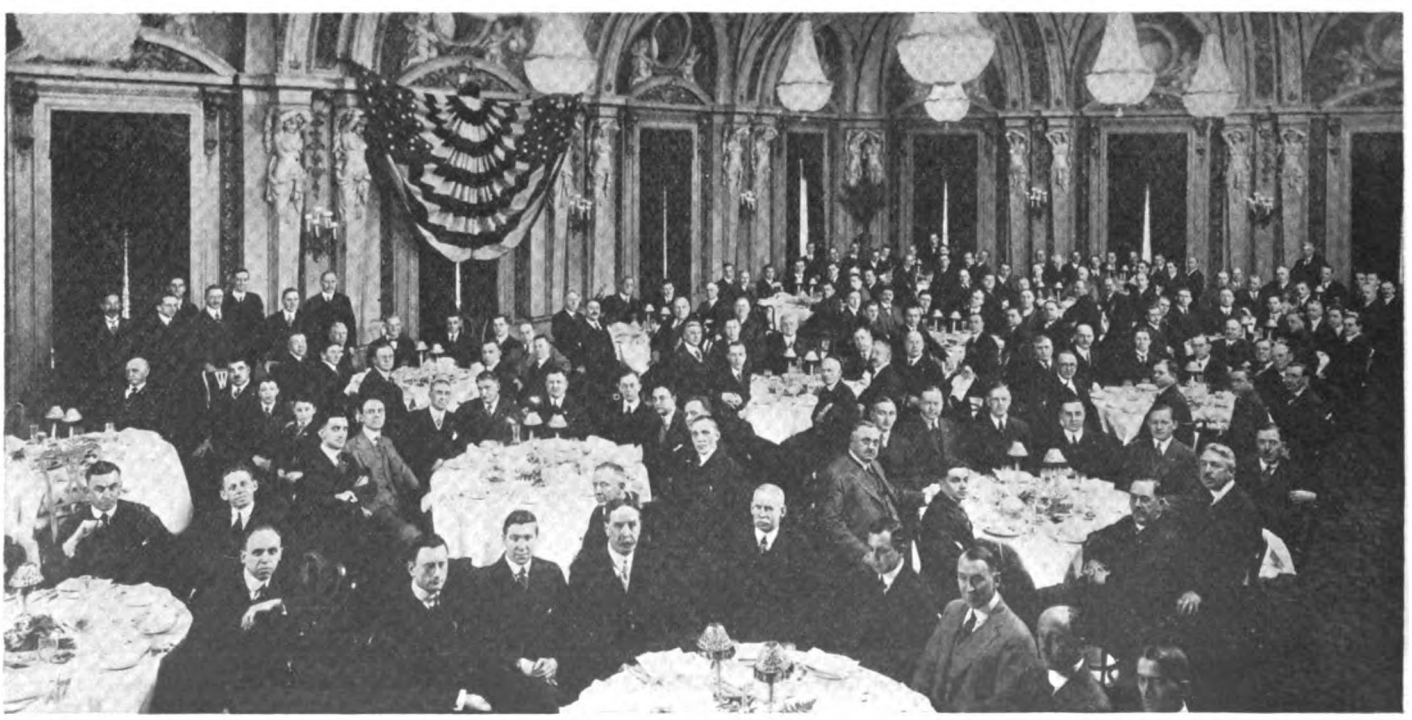
Dealer Dinners That Featured Show Week



Distributers of the Smith Form-A-Truck Association

One of the notable features of the Show in the way of dealer gatherings was the banquet given by Cole & Dixon, Inc., New York distributer for the Smith Motor Truck Corp., in the East Ballroom of the Hotel Astor. Dealers and distributers handling the Smith Form-A-Truck were present from all parts of the country.

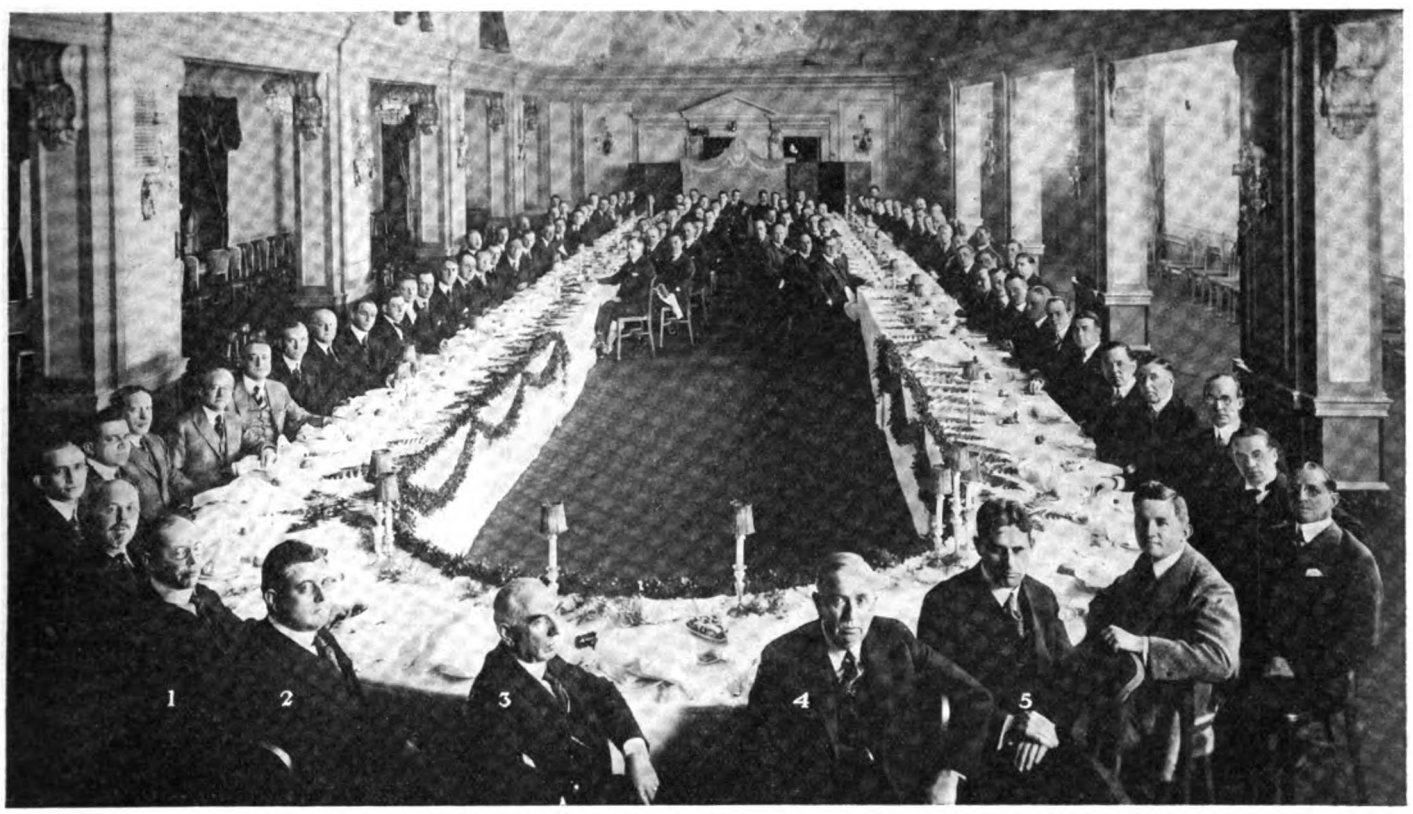
D. W. Figgis, president of the Smith Motor Truck Corp., outlined the broad sales policy for the coming year. Other speakers included F. Berry Rockwell, Mr. Gotschall, C. M. Strieby and James Newell. The banquet was in the nature of a jollification get-together of Smith Form-A-Truck enthusiasts.



Annual Get-Together of the Cycle Parts and Accessories Association

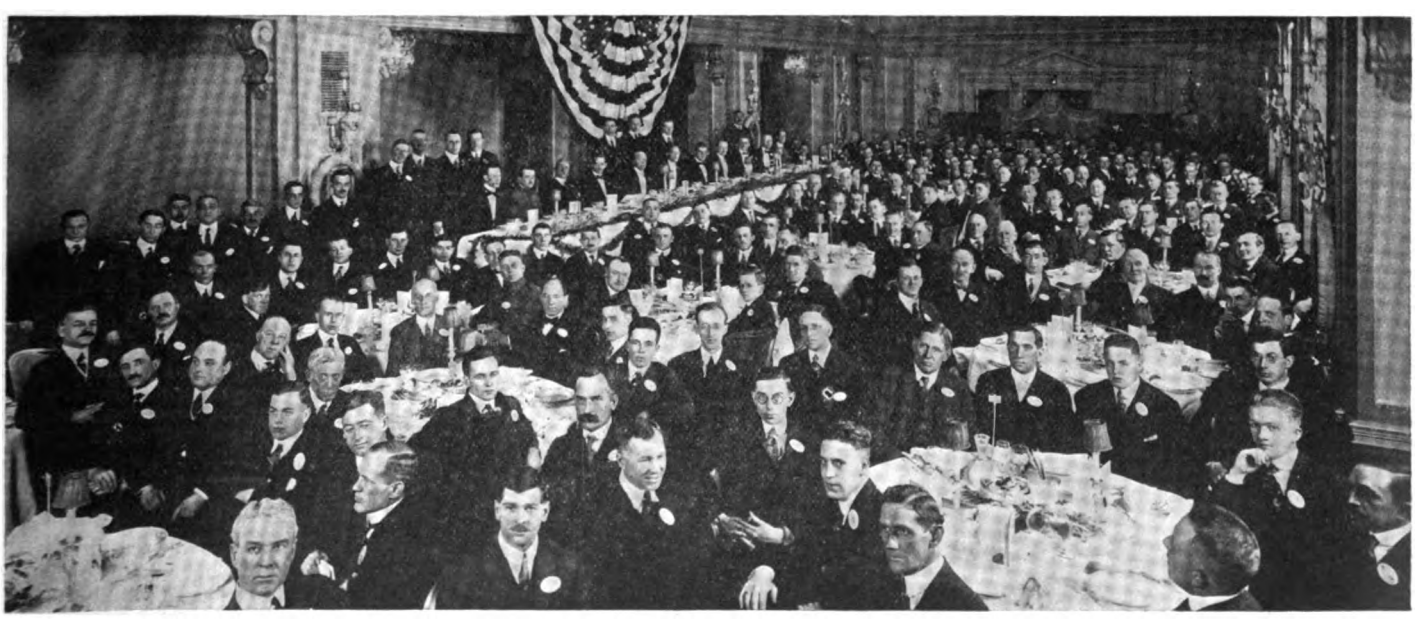
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Dinners That Mixed Business and Pleasure



Representatives of the Class Journal Co., Publisher of Motor World

This is but part of the organization which gathers each year during the New York show. Those who bear numbers are: (1) *E. M. Corey, Treasurer;* (2) *W. I. Ralph, Vice-President;* (3) *H. M. Swetland, President;* (4) *A. B. Swetland, General Manager;* (5) *David Beecroft, Directing Editor of Motor World*



Third Annual Banquet of the Racine Rubber Co., of New York

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Annual Banquet of the Motor and Accessory Manufacturers' Association, held during Show Week

Wave of Optimism Follows the Show

Business Not Quite as Good and Attendance Off a Little Though Results Are Rated High

NEW YORK, Jan. 12—Greater spirit for a good year during 1918 is manifest to-day than a week ago, when the New York show opened. If the show has done nothing else it has shown the country that the industry still is on the map and turning out a product that has been revised and improved during the recent months of war just as the car has been improved in every other year.

All of those who were asked to-day said the show without question had been worth while. Business, especially at retail, was not up to the figure of a year ago, and the attendance was not as large, but the results are nevertheless regarded as very gratifying. It is anticipated that some of those who formerly made the long journey from the far West to the New York show will this year make the shorter trip to the Chicago show instead.

At the dealer dinners held during the week the story was one of courage for the dealers, many of whom came to the show in a rather wilting attitude. This attitude has been largely corrected, say the exhibitors, and a better tone is expected as soon as the dealers get back into their territories.

Rowerdink Staves Off Trouble

ROCHESTER, N. Y., Jan. 15—W. H. Rowerdink & Son, a jobbing house, is endeavoring to avoid complaints about shipments by mailing with statements and other mail a small card bearing these remarks:

Do You Know—

That it takes nearly twice as long to deliver mail to you as it did before war was declared?

That there is a shortage of transportation equipment resulting in congestion everywhere and that shipments made by us to our customers are delayed for this reason?

That every few days embargoes are declared on the leading transportation lines and only government goods are accepted for shipment?

That all American business men alike are facing this problem and striving as best as they can to rebuild their organizations in the face of discouraging conditions?

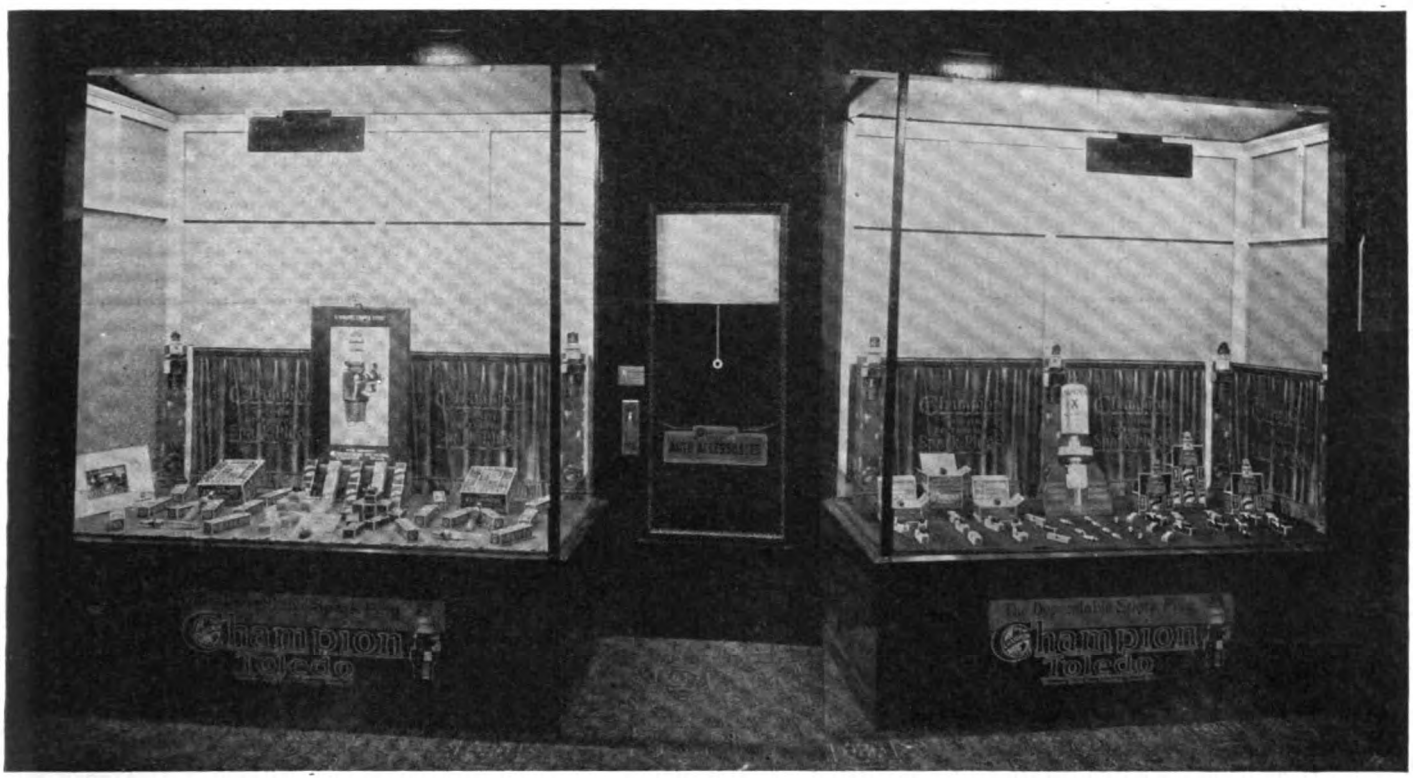
That you can help "do your bit" by anticipating your requirements as far in advance as possible, by being patient when delays occur and by realizing we are not responsible for the above conditions, but are doing our best to contend with these adverse circumstances?

Ford Holds Profit Sharing Banquet

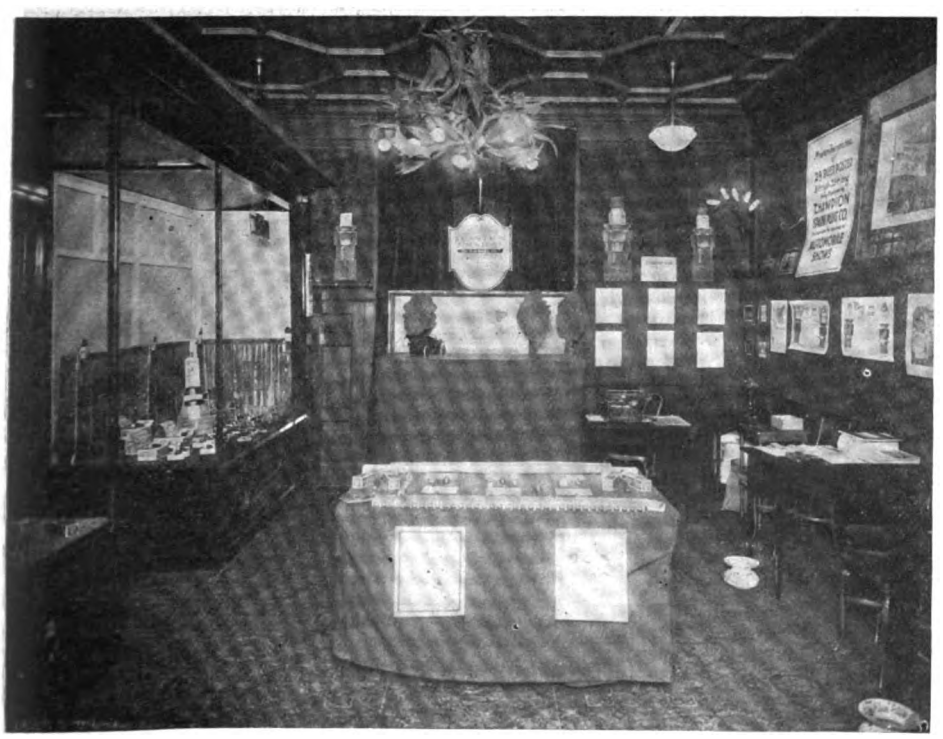
DETROIT, Jan. 14—The annual Profit Sharing Banquet of the Ford Motor Co. was held at the Statler Hotel here, Saturday. The event was celebrated to commemorate the start of the profit sharing and welfare system. About 300 were present, including Henry Ford.

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Showing the Dealer How to Trim Windows



THE Champion Spark Plug Co., Toledo, had the most elaborate of the dozen or more specially designed and set up exhibits that were held in some of the big New York hotels during the week of the show. Along one side of a large room a complete store front was set up. This was done to show the proper manner to dress Champion windows and as a guide to the hundreds of dealers and jobbers who visited the exhibit. This view shows only the store front. What appear to be curtains on small square parts are merely cardboard cut-outs that Champion is furnishing. These enable the garageman with no window background to achieve a good merchandising effect



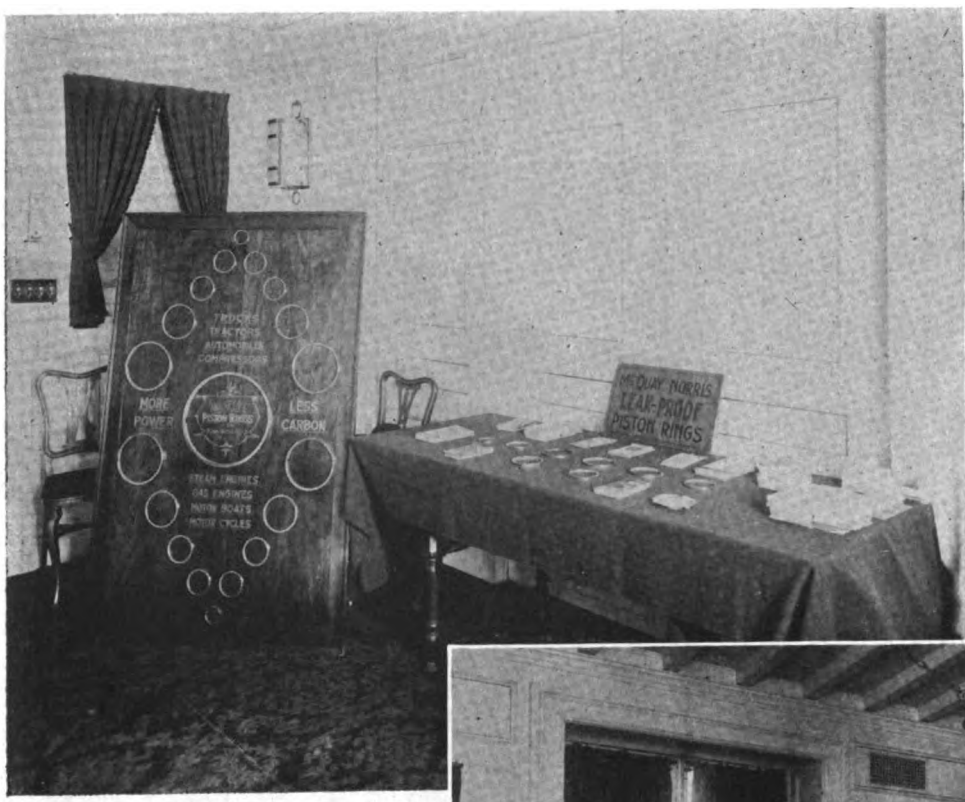
How a Dozen Makers Have Taken Advantage of the Comparative Quiet and Privacy of a Hotel Room Exhibit.

When the visitor entered the Champion room this is what he saw first. When he turned to the left, he saw the elaborate store front which is pictured above

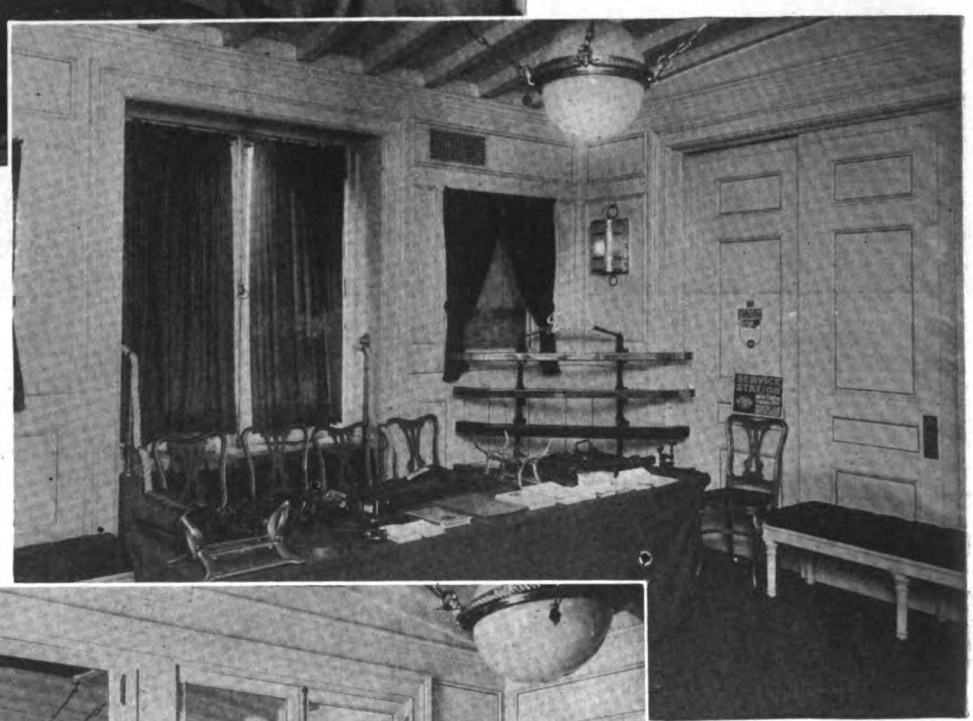
TURN THIS PAGE. THERE ARE MORE PICTURES LIKE THESE.

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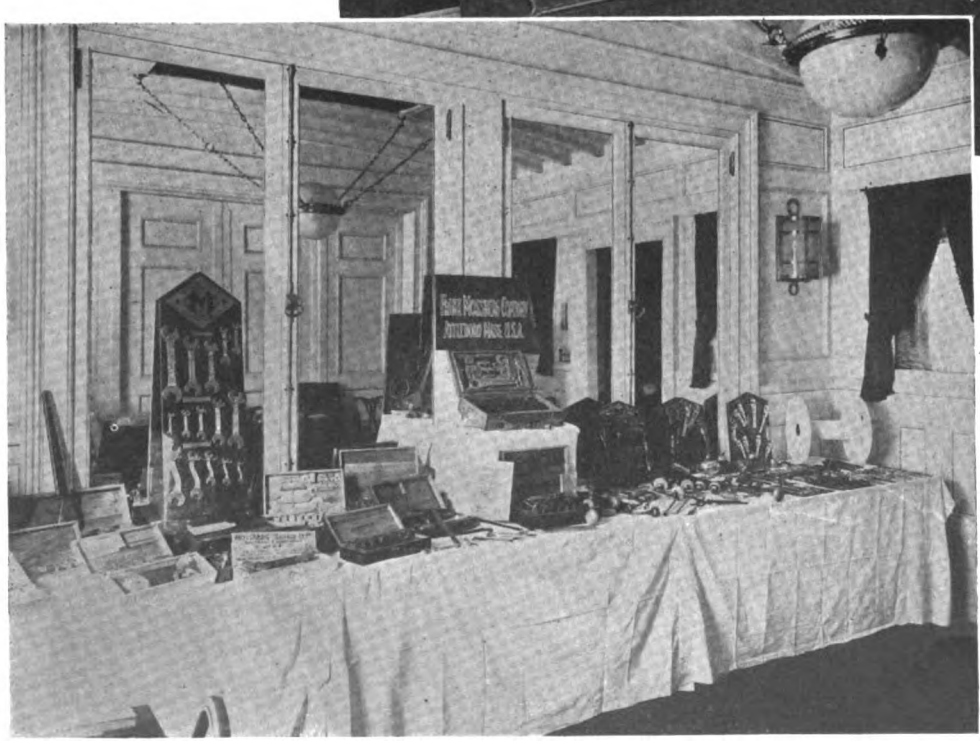
How to Show in



The McQuay-Norris Mfg. Co. had a simple hotel exhibit. But it was a haven of rest after the turmoil of the Palace show, and, incidentally, a place where much business was transacted. Thus, the Leak - Proof headquarters served a dual purpose



This is how the Garage Equipment Mfg. Co. spread out its wares for the inspection of dealers and jobbers in its hotel room during the show. Every year as the shows grow larger and more crowded, hotel exhibits like these are getting more popular



Somewhat more elaborate than either of the other two on this page was the display arranged by the Frank Mossberg Co. Practically every product manufactured by the company is exhibited on this table

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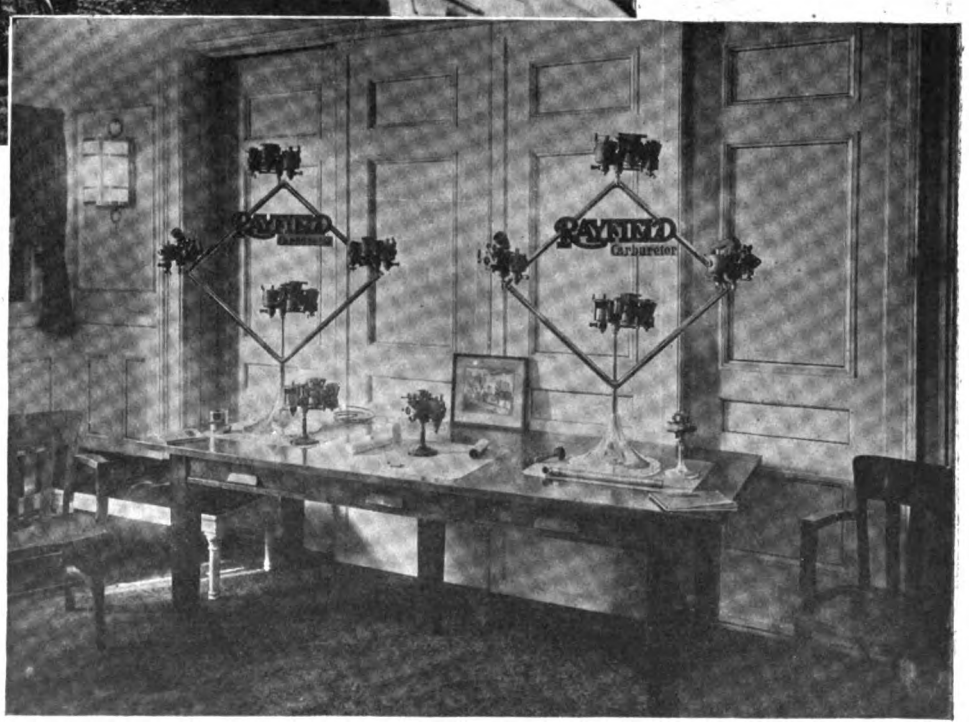
a Hotel Room



The Miller Tire Company arranged one room as a foyer. Notice that even the position of the wire wheels invite the visitor into the other room where there was displayed a complete line of Miller products



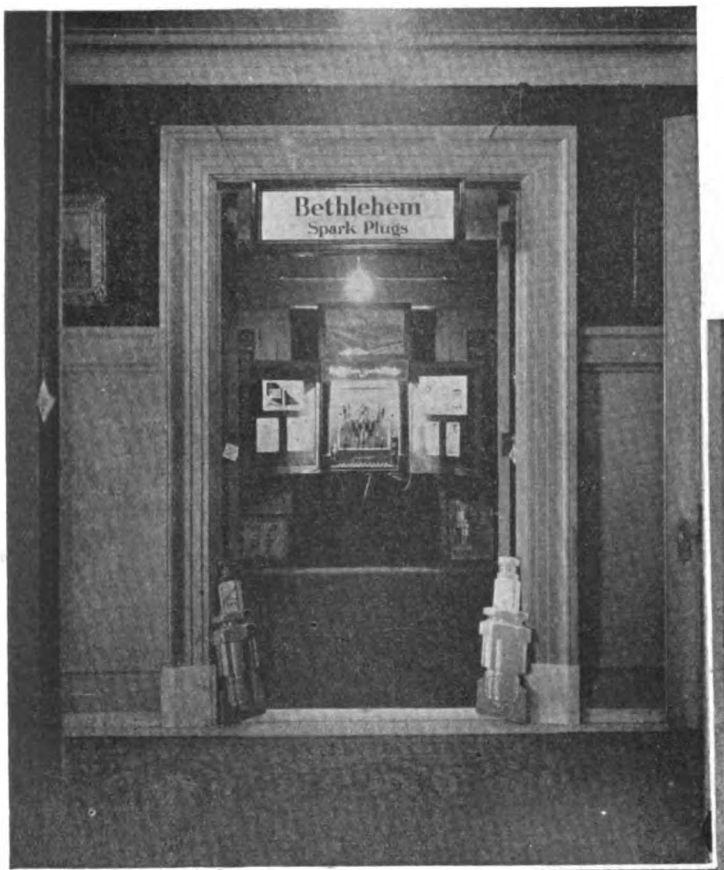
Five manufacturers shared this exhibit room. They are the Tri-Continental Corp., the Motor Specialties Co., the Packard Electric Co., the Bailey-Drake Co. and Auto Parts Co.



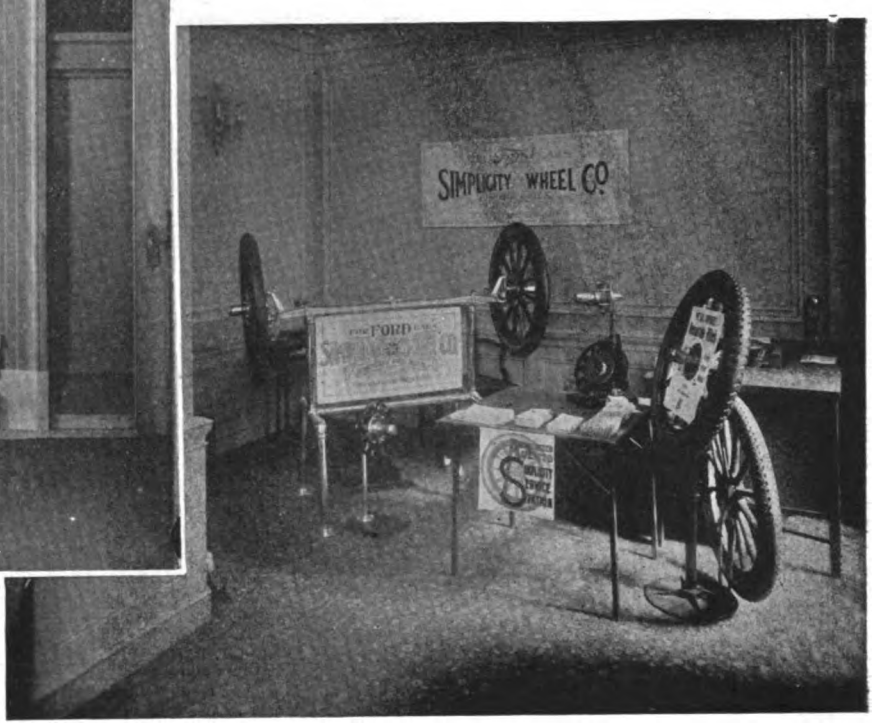
The Rayfield exhibit gives a good idea of what can be done by way of making a hotel exhibit attractive and of a genuine merchandising value. Probably it would be impossible to show carbureters to better advantage than by utilizing stands such as those illustrated

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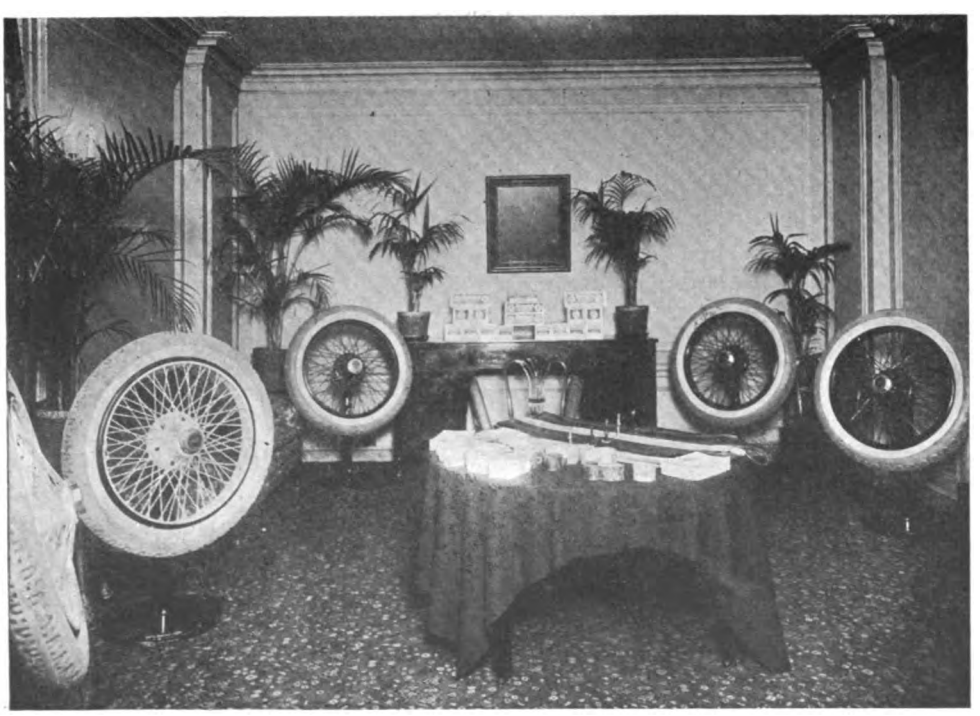
More Good Hotel Exhibits



This is the inviting entrance that was arranged by the Silvex Co. for its exhibit of Bethlehem spark plugs. Inside there was an elaborate display case with a complete line of plugs illuminated by a battery of brilliant spotlights



The Simplicity Wheel Co. did not have much in its room, but what it had was well arranged with an eye to showing all there was to show about Simplicity wheels, their appearance, construction and method of application



The Norwalk Tire & Rubber Co. had one of the most attractive of all the hotel exhibits. The palms lent an additional air of quiet and were in soothing contrast to the hurry and bustle and crowds of the Palace show

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Men You Will Meet
AT THE CHICAGO SHOW

THESE Men You Will Meet at the Show are in two lists—Cars and Accessories. Those before which is an asterisk (*) are delegated by their companies to give especial attention to dealers and to handle dealers' business. The name of the hotel at which the company will make its headquarters, aside from the exhibit at the show, follows the company's name.

ACCESSORIES

Amazon Rubber Co.—New Southern—*Frank W. Kurtz..

American Hardware Corp.—Headquarters, 335 Wells St.—*R. A. Sundvahl, *C. J. McCurry, *S. W. Ford, *A. F. Breither.

Armstrong Cork Co.—La Salle—*George T. Turner, *E. F. Ebberts, F. L. Munroe, John C. Stagg.

Bay State Pump Co.—Sherman—*A. J. Bolger, J. W. Murphy.

Black & Decker Mfg. Co.—Fort Dearborn—*William E. Jordan, S. D. Black, W. F. Meyer, R. H. Smith.

Bosch Magneto Co.—Headquarters, 3737 Michigan Ave.—*William Brown.

Bound Brook Oil-Less Bearing Co.—La Salle—George O. Smalley, Harry J. Lindsley, Nate A. Wade, William F. Jennings, J. Bertram Howell.

Challoner Co.—La Salle—*Otto Kaufman, G. S. Everhart, Harry Van Horn, William Krug.

Champion Ignition Co.—La Salle—*W. S. Isherwood.

Corcoran Mfg. Co.—Sherman—*W. R. Hughes, Martin Murray.

Essenkay Products Co.—*J. A. Jones, F. D. Mayer, A. H. Knodell, J. A. Jones, A. H. Lipman

Findeisen & Kropf Mfg. Co.—Auditorium Annex—*E. V. Swanstrom, *G. R. Lundane, E. A. Bates, M. F. Colvin.

Fitzgerald Mfg. Co.—Great Northern—*J. P. Hutchison.

Gemco Mfg. Co.—Congress—*L. A. Raasch, *George H. Treviranus, *John Craig, *C. N. Jonas, *R. D. Jonas, G. F. Discher, Martin A. Dewey, Jr.

Gibraltar Jack Co.—Congress Annex—*A. F. Wagner, R. L. Whitman.

Gray & Davis.—Blackstone—*William Gray.

H. & D. Co.—La Salle—*C. W. Romine, *D. M. Peck, H. F. Little, L. D. Romine.

Heinze Co., John O.—La Salle—*R. B. Mellin.

Humboldt Machine & Stamping Co.—*F. Furrelle, *M. L. Berkowitz, R. W. Russell, H. R. Andariese.

Imperial Brass Mfg. Co.—headquarters, 1290 W. Harrison St.—*W. S. Noyes, *A. H. Framhein, F. McNellis, C. E. Young, J. Schrocter, J. Pettis, E. Kaufman.

Kellogg Mfg. Co.—Blackstone—*Messrs. Anstice, Monson, Coates, Kirk and Edwards.

Klaxon Co.—Blackstone—*D. A. McConnell, *E. Berg, *Walter P. Coghlan, F. B. Ruoff, R. L. Wilkinson, P. M. Farmer, P. Peiffer, Jr.

Laidlaw Co., Inc.—Congress—*William R. Laidlaw, *James H. Johnson, *Frank J. Partlan, William A. Sweetland, Clyde B. Juff.

Laminated Shim Co.—Blackstone—Bradford Darrach, Charles S. Munson.

Marvel Accessories Mfg. Co.—La Salle—*S. I. Rose, E. T. Thalman, Sig. Miller, O. S. Kenzy, C. J. Collings, J. C. Clare.

Menominee Electric Products, Inc.—Blackstone—*M. Feldine, and Mr. Ruzicka.

Merchant & Evans Co.—*Messrs. Reeves, Arnharst, Gibb.

Miller Transmission Co.—*Dorr Miller, *Edmond Quincy, *E. R. Packer, *E. L. McIntyre.

Mosler & Co., A. R.—Sherman—E. Gluckauf, C. D. Parr, J. W. Fischer, A. R. Mosler; Clarendon Beach—T. J. Burns, G. W. Fischer, H. H. Meyer.

Ogden Mfg. Co.—*D. Ogden, *P. D. Kinney, L. E. Ogden.

Charles Schutte Body Co.—Congress—C. E. Schutte, A. E. Effrig.

Shaler Co., C. A.—La Salle—*R. B. Dunlap, *M. E. Faber, *R. E. Malone, *W. R. Melcher.

S K F Ball Bearing Co.—*C. R. Mabley, H. N. Trumbull, G. A. Ungar, C. C. Walsh, J. B. Castino, A. J. Gillespie, F. J. Rider.

Spencer Metal Products Co.—New Southern *George Bouthinon.

Stewart-Warner Speedometer Corp.—Blackstone—F. H. Martin, Sherman House,—Berne Nadall, L. L. Banford, Morrison—E. F. Morford, D. F. Hyland, J. C. Stiles, William H. Fry, F. O. Fleischer, W. J. Browne, L. W. Peterson, A. A. Ungar, O. L. Head; also Chicago res. C. B. Smith, W. J. Zucker, G. B. Wright, Wegg Jay, S. Kraus, John Genn, Victor W. Peterson, Frank Ross, John W. Poppert.

Stromberg Motor Devices Co.—headquarters, 58 E. 25th St.—*W. L. O'Neill, J. C. McMichael, *M. J. Kirk, and Messrs. Simons, Hart, Henes.

Syracuse Universal Mfg. Co., Inc.—Fort Dearborn—*Stephen L. Young, *Arthur S. Viall.

Taft-Pierce Mfg. Co.—La Salle—*R. E. Carpenter, J. E. Riley, A. A. Martell, C. S. Collinson, W. H. Oliver, Jr.

Tuthill Spring Co.—headquarters, 760 Polk St.—*D. S. Campbell, H. H. Osborne, A. A. Dailey.

United States Gage Co.—Congress—*M. M. Lawler, *R. E. Bruckner, *Joseph Hollee, *George R. Beamer.

Universal Tool Co., Inc.—La Salle—*C. H. Hinckley, *R. E. Roseberry, *Donald McGraw, Enoch H. Herman.

Vacuum Oil Co.—*R. L. Wright, *W. W. Harrington,

Wire Wheel Corp. of America—Auditorium—*O. J. Rohde, Frank A. Storer, Ralph D. Webster.

CARS

Allen Motor Co.—J. E. Wright, V.-Pres.; R. G. Ewell, Adv. Mgr..; R. B. Perry, Sec.; W. O. Allen, Treas. and Gen. Mgr.; L. A. Sommer, Con. Engr.

American Motors Corp.—Auditorium—Robert Bursner, Treas.; W. T. Miller.

Anderson Electric Car Co.—Congress—G. D. Fairgrieve, E. P. Chalfant, B. C. Downing.

Anderson Motor Co.—Congress—J. W. Anderson, V.-Pres.; H. H. Hobbs.

Apperson Bros. Automobile Co.—Congress—Edgar Apperson, Sec.-Treas.; T. E. Garrard, V.-Pres. and Sales Mgr.; George H. Strout, W. S. Beers, R. M. Kelvie, S. L. Kimball.

Auburn Automobile Co.—J. I. Farley, Sec. and V.-Pres.; M. Garrett.

Austin Automobile Co.—Congress—W. S. Austin, V.-Pres.

Baker R. & L. Co.—R. M. Owen, M. A. Watterson, H. H. Doering, A. C. Faeh, W. G. Pancoast, Paul Frank.

Briscoe Motor Corp.—Congress—L. E. Wilson, V.-Pres. & Sales Mgr.; Guy C. Core, Adv. Mgr.; Wayne Hearne, Jack Graf, J. R. Findlater, C. E. Eichinder, J. T. Anderson. Charles Salak, T. A. Burgess, E. M. Doty.

Buick Motor Co.—W. P. Chrysler, Pres. and Gen. Mgr.; E. T. Strong, Sales Mgr.

Cadillac Motor Car Co.—Congress—R. H. Collins, Pres. and Gen. Mgr.; D. McCall White, Chief Eng.; E. C. Howard, Sales Mgr.; L. McNaughton, Asst. Sales Mgr. J. O. Harris, George H. Gaston, E. C. Gorman, E. P. Merrill, Fred Schleuter.

Chalmers—Maxwell Motor Sales Corp.—Congress—T. J. Toner, Sales Mgr.; A. J. Banta, Asst. Sales Mgr.; H. W. Miller, C. H. Becker, R. C. Reichel, J. M. Robbins, R. F. Keeler, J. R. Whiting, Gordon Muir, Adv. Mgr.; Christy Walsh, Publicity Mgr.

Chandler Motor Car Co.—Congress—F. C. Chandler, S. Regar, J. M. Dunlap, S. Black, G. M. McGinnis, K. R. Spencer, S. C. Hanna, J. V. Whitbeck.

Chevrolet Motor Co. of Mich.—Blackstone—W. C. Sills, T. J. McMullen, A. B. C. Hardy.

Cole Motor Car Co.—Congress—J. J. Cole, C. P. Henderson, J. E. Roberts, H. R. Hyman.

Columbia Motors Co.—Blackstone—*W. L. Daly, *F. E. Sangbush, J. G. Bayerline, A. T. O'Connor, George J. Martin.

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Crow-Elkhart Motor Co.—Congress—M. E. Crow, Pres.; M. E. Hoshaw, Sales Mgr.; A. A. Handler, Chief Engr.; C. W. Coil, H. A. Deitch, H. D. Wilson.

Cunningham, James, Son & Co.—Blackstone—*C. A. Baird, George W. Costello.

Davis Motor Car Co.—G. W. Davis, Pres. & Sec.; R. M. Beck.

Dixie Motor Car Co.—La Salle—*A. B. Challinor, *F. H. Holman, *C. N. Mullican, R. V. Board, W. B. Beckman, J. F. Murphy, Charles Redecker.

Dodge Bros.—Blackstone—A. I. Philp, Sales Mgr.; George C. Hibbs, Asst. Sales Mgr.; A. E. Barker, C. W. Matheson, G. H. Phelps, Adv. Mgr.; H. M. Robins, Russel Huff, Chief Eng.; F. J. Haynes, Factory Mgr.

Doble-Detroit Steam Motors Co.—Blackstone—*T. P. Myers, M. J. Hammers, Abner Doble, C. L. Lewis, R. H. Thayer, E. C. Thompson.

Dort Motor Car Co.—J. D. Mansfield, F. S. Petrie, H. S. Daniels, C. F. Applegate, J. R. Van Cleve.

Elgin Motor Car Corp.—Morrison—C. S. Rieman, V.-Pres.; C. F. Jamison, A. L. Tull, Sales Mgr.; H. W. Huffman, George L. Brush, F. M. Goodman, W. E. Bertsch, Adv. Mgr.; M. Edwards, Jr.

Elkart Carriage & Motor Car Co.—W. H. Patterson, Gen. Mgr.; E. D. Landis.

Empire Automobile Co.—Congress—K. J. Horwitz, Treas. & Gen. Mgr.; F. A. Babcock, Sales Mgr.; H. W. Fenton, Adv. Mgr.; L. V. Cram, Chief Engr.

Franklin Motor Car Co.—Congress Annex—*S. E. Ackerman, S. B. Dodge, H. H. Franklin, J. E. Walker.

Hal Motor Car Co.—Congress—Frank B. Willis, Pres.; J. C. Weed, Adv. Mgr.; Darwin Hanauer, Chief Eng.; Fred H. Junk.

Harroun Motors Corp.—Congress—J. J. Plath, Sales Mgr.; R. Ward Macey, S. W. Monroe, W. W. Leathers.

Haynes Automobile Co.—Blackstone—S. M. Howe, H. R. Perry, H. K. Keeling, Frank Nutt.

Hudson Motor Car Co.—Congress—E. O. Patterson, O. H. McCormack, W. J. Drumplemann, G. G. Behn, C. W. Forbes, H. M. Hastings, G. W. Cushing, W. S. Ramsay, E. H. Carpenter, C. C. Winningham.

Hupp Motor Car Co.—Congress & Annex—*Lee Anderson, *O. C. Hutchinson, *H. E. Westerdale, *A. B. Drury, F. Dickinson, C. E. Salisbury, C. H. Wallerick, J. R. Overstreet, J. R. Headley, Jr.; H. R. Roberts.

Inter-State Motor Co.—Henry Knippenberg.

Jordan Motor Car Co.—University Club—Paul Zens, Sec. & Treas.; W. B. Riley, Sales Mgr.; Edward S. Jordan, Gen. Mgr.; Russel S. Begg, Chief Eng.; T. J. Kegg.

King Motor Car Co.—La Salle—Artimas Ward, Jr., Pres.; W. C. Hood, Sales Mgr.; T. P. Chase, Chief Engr.; E. A. Scheu, George Gurney, J. E. Peterson, A. G. Dale, J. B. Siegfried.

Kissel Motor Car Co.—Congress—G. A. Kissel, W. L. Kissel, Charles E. Giltner, G. C. Frey, Charles McCausland, S. P. Valesius, A. W. Marquardt, John Lynch.

Lewis Spring & Axle Co.—Congress—F. H. Lewis, Pres.; Mansell Hackett.

Liberty Motor Car Co.—Congress—Percy Owen, Pres.; J. E. Fields, Sales Mgr.; R. E. Cole, Chief Engr.

McFarlan Motor Co.—Sherman—A. H. McFarlan, Pres.; B. M. Barrows, V.-Pres.; Edward W. Cotton, Sec.; Edward McGonigal, Chief & Design Engr.

Maxwell Motor Sales Corp.—Congress—C. E. Stebbins, T. J. Toner, Gordon Muir.

Mercer Automobile Co.—W. A. Smith, Sec.

Milburn Wagon Co.—Congress—H. W. Suydam, Pres.; F. H. Dodge, Treas.; Otto Marx, V.-Pres.

Mitchell Motors Co.—Congress—D. C. Durland, Pres.; R. C. Rueschaw, V.-Pres.; S. G. Dodge, John Tainsh, Sales Mgr.; F. A. Kapp, Adv. Mgr.; R. N. Soules, R. W. Davis, J. C. Brandeman, H. T. Hays, John Boe, W. D. Hawley, J. M. Phipps, F. C. Haumerson.

Moline Automobile Co.—La Salle—C. H. Van Dervoort, Sales Mgr.; D. M. Beal, Adv. Mgr.

Monroe Motor Co.—Great Northern—L. D. Haas, Sales Mgr.; B. C. Bradford, P. C. Hill, William Small, G. J. Gilbert.

Moore Motor Co.—New Southern—George L. Moore, Treas.; A. C. Leonard, Chief Engr.; E. K. Gallagher, Sec.; D. M. Ryan, Louis Disbrow.

Nash Motors Co.—Congress—C. B. Voorhis, R. D. Bishop, J. A. Rose, H. Hart, E. J. Travers, A. E. Creiger.

National Motor Car & Vehicle Corp.—Auditorium—George M. Dickson, J. M. Clarke, C. Baker, A. E. Vinton, H. H. Schmidt, W. B. Hamblay.

Nordyke & Marmon Co.—Congress—H. H. Rice, Walter Bieling, Harry Fosdick, W. A. Beal, F. E. Moskovics, H. H. Brooks, H. Hyde.

Olds Motor Works—Blackstone—Edward Ver Linden, Pres.; Fabio Sergardi, Chief Engr.; P. L. Emerson, Sales Mgr.; A. L. A. Spetler.

Olympian Motors Co.—Sherman—Fred K. Parke, President; St. Clair Couzens, Sales & Adv. Mgr.; L. P. Helm, Chief Engr.; C. H. Hurst, F. W. Thomas, Asst. Engr.

Owen—Baker R & L Co.—Blackstone—R. M. Owen, V.-Pres.; H. H. Doering and M. A. Watterson, Sales Mgr.; A. C. Faeh.

Paige-Detroit Motor Car Co.—La Salle—*H. Krohn, *W. H. Dickinson, H. M. Jewett, F. L. Jewett, A. L. Tisch, Charles S. Pike.

Paterson Co., W. A.—W. R. Hubbard, Sales Mgr.; C. H. Thrush, Frank Laster, Donald Laster.

Peerless Motor Car Co.—Congress—R. J. Schmunk, Sales Mgr.; W. R. Strickland, Chief Engr.; S. W. Slack, Asst. Engr.; Ben. Rennerd, W. H. Fraser, W. W. Lewis.

Pierce-Arrow Motor Car Co.—Blackstone—Carol Wilcox, W. S. Shortal, William O'Day, Laurence Clark, A. E. Killinger.

Premier Motor Corp.—Blackstone—*P. D. Stubbs, *E. W. Hurd, J. C. Flowers, E. W. Steinhart, C. S. Crawford, F. P. Nehrbas, P. A. Berry, L. J. Goldman, J. B. Bragassa, R. J. Wynne.

Reo Motor Car Co.—Congress—R. H. Scott, F. H. Akers, C. E. Eldridge, H. C. Teel, C. W. Arthur, H. Harris, J. C. Miller, F. L. Waite, W. C. Parker, H. J. Stabler, E. L. Sloan.

Roamer Motor Car Co.—Congress—A. C. Barley, Pres.; M. L. Kellogg, Sales & Adv. Mgr.; R. V. Allen, Robert Lanzing, E. H. Beacham.

Saxon Motor Car Corp.—Blackstone—C. L. Fox, H. S. Benjamin, George O. Baldwin, C. S. McNaulty, B. O. Willibrands, F. B. Packwood, K. W. Macrae.

Scripps-Booth Corp.—La Salle—A. H. Sarver, Pres.; L. J. Stevenson, R. F. Merritt.

Standard Steel Car Co.—La Salle—*F. C. Van Derhoof, *H. A. Houser, *S. G. Duffy, O. E. Barthel, R. Lasher.

Stanley Motor Carriage Co.—Blackstone—Prescott Warren, Pres.; Frank Jay, V.-Pres.; J. H. Wright, Ed M. Hallett, Treas.

Stearns Co., F. B.—P. M. Booker, G. W. Booker, J. G. Sterling.

Studebaker Corp. of America—A. R. Erskine, L. J. Ollier, R. T. Hodgkins.

Stutz Motor Car Co.—Morrison—H. C. Stutz, Pres.; W. N. Thompson, Treas.; T. L. Marshall, Sales & Adv. Mgr.; Charles E. Stutz.

Templar Motors Corp.—La Salle—H. W. Anderson, Sales Mgr.; C. E. Bailey, Asst. Sales Mgr.; A. M. Dean, Chief Engr.; C. H. Landsittel, Pur. Agt.; C. E. McCullough.

Westcott Motor Car Co.—Blackstone—H. G. Root, Sec.-Treas. & Gen. Mgr.; E. H. Gilcrest, Sales Mgr.; P. W. Runyon, Adv. Mgr.; H. H. Brehm, J. L. Grissner, E. L. Harrison.

Willys-Overland Co.—La Salle—K. R. Jacoby, W. W. Canaday, H. G. L. Campbell, A. D. Barber, D. H. Cox, C. M. LeRoux, W. G. Northrup, R. J. Snowback, O. W. Lindgren, J. W. Peters, R. L. Butler, O. R. Hardwell, J. R. Handley, T. C. Woodin.

Winton Co.—La Salle—O. F. Baughman, C. W. Mears; Congress—C. W. Churchill.

Wright Heads Winnipeg Dealers

WINNIPEG, Jan. 14—At the annual meeting of the Winnipeg Motor Trades Association the following officers were elected: President, D. J. Wright, Western Canada Motor Co.; vice-president, R. McKenzie, McLaughlin Carriage Co.; secretary-treasurer, A. C. Emmett. Car Dealers and Garage Section, Representatives: A. R. Leonard, Cadillac Motor Sales Co.; T. G. Breen, Breen Motor Co.; Alfred Maw & Co. Tires and Accessories Section Representatives: Michael Ert, Michael Ert, Ltd.; C. F. Young, Auto Tire & Vulcanizing Co.; R. McKinnon, Dunlop Tire and Rubber Co.

Considerable agitation has taken place in regard to gasoline supplies and the association has undertaken a campaign to educate the public and Government officials to the fact that there is no present shortage of supplies as far as Canada is concerned. Action is being taken by all the western motor leagues, the trade association and the eastern clubs to bring the matter before the Government by means of a large deputation and to obtain some authoritative statement that the Government will not curtail the use of cars in any way until absolute necessity compels such a step. Such action is necessary as owing to want of knowledge as to the Government position trade is being hampered. The association has secured new offices in the Scott Block at the headquarters of the Winnipeg Automobile Club.

Separates Service From Sales

ST. LOUIS, Jan. 14—H. G. Hurd, Buick retail distributer, has made a notable change in the method of handling service. He has incorporated the Standard Auto Service Co., which will be the service department for Buick cars. This company will be located at the present Buick service headquarters, 3952 Olive Street. The retail sales are made from the Vesper-Buick Auto Co., wholesale salesrooms, at Grand Avenue and Lindell Boulevard. Hurd says that his reason for the innovation is that he does not want persons in a bit of a temper invading the retail salesrooms. All purchasers will be informed as to where service is to be obtained.

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CAN WE AFFORD TO DO WITHOUT CARS?



Read All of This Page

***THE SAXON DEALER** in Stockton, Cal., has been doing his bit toward showing the public why the car is a necessity and not a luxury. The cartoon on this page was run in the Stockton paper, having first appeared in the dealer's house organ. Give these pictures the "once over," add a few of your own ideas and don't ever let anybody make you back water again on this "luxury" foolishness*

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Dealers Can Use the Trade Acceptance

New York Jobbers adopt standard form and send out letter to dealers and garagemen, offering to assist trade to put new plan into effect

NEW YORK, Jan. 10—The dealer and garageman can use the trade acceptance on the customers who buy from him at retail. This idea is to be spread broadcast in the jobbing district surrounding New York city by the Eastern jobbers.

Some time ago the New York jobbers held a meeting and discussed the using of the trade acceptance. It is already being used upon jobbers by quite a number of manufacturers, and in an effort to make business conditions better it was suggested that the jobbers use the acceptance in sending goods to dealers and garagemen.

At a meeting this week at the Hotel McAlpin the jobbers agreed upon the standard form of trade acceptance that is being issued by the National Association of Credit Men. A large number of these are to be ordered and used.

With it will be sent out to the trade a letter which is printed elsewhere on this page. It will be noted that the last paragraph of this letter states that the jobbers are willing to extend to the dealers any assistance in putting this plan into operation with retail customers.

This means that the dealer can go to his jobber, secure all the available information about the trade acceptance form, how it is used, the benefits that come from it, and then purchase a quantity of these for use with his own retail trade.

By the use of the trade acceptance the man who sells goods is enabled to get the cash value of the bill at once and the buyer of the goods does not have to pay for them until a credit period has passed.

At this week's meeting the discussion came up as to whether labor that is performed in a garage could be classed as merchandise, and included in an acceptance to a retail customer. Secretary Wilmot, of the National Association of Credit Men, said that the Federal Reserve Board had ruled that labor can be classed as merchandise.

In the case of garage storage on a monthly basis where the rate is, let us say, $30 for live storage and $5 or $10 for dead storage, it is obvious that about 60 per cent of the storage charge is for service, and Wilmot said that in case the bulk of the charge was for labor and service there would be no objection whatever to using the trade acceptance for the entire monthly storage bill.

This means that the proprietor of a garage or repairshop may present to his customer for signature a trade acceptance. When this had been signed the garageman could cash it and the amount would then be collected from the customer at his bank at the end of 30 days or whatever other period was specified in the acceptance. In putting the trade acceptance into effect it is suggested by the jobbers here that they order sample forms and mail them out to the trade about the middle of this month so that dealers and garagemen will be familiar with the plan by the time Feb. 1 statements are issued. The sample forms will consist of the trade acceptance part and the explanation part, sections 1 and 2 of the acceptance shown on the opposite page.

Letter New York Jobbers Are to Send Out

Owing to the abnormal conditions brought about by the war, increased cost of materials and general restriction of credits by banks and manufacturers, it has become necessary for us to adopt a slightly different policy for the settlement of our accounts, which policy has been approved by the Federal Reserve Board as being the most effective method of meeting these changed conditions and has been adopted by many leading business houses throughout the country. By your co-operation in this respect you will find that you will be able to do business along the same lines as heretofore without serious credit restriction and we are sure that the plan as submitted below will meet with your approval and our former pleasant business relations will continue as heretofore.

The plan is as follows:

On the first of each month we will send you a statement of your account as formerly, to which will be attached a Trade Acceptance like the inclosed sample. You will have the privilege of deducting the customary cash discount in making payment of this statement on the 10th prox. as heretofore, but in case you find it inconvenient to make payment in this manner we request that you fill out and sign the Trade Acceptance attached hereto for the net amount of your statement less any deductions to which you may be entitled that are not shown on our statement, and return to us. The acceptance should be made payable at your Bank on or before the of the succeeding month after date of statement. You will note that the Trade Acceptance herewith attached is filled out in the correct manner and may be used as a sample for your future use.

The Trade Acceptance is not a sight draft or a note and is not looked upon as such by your bank. A Trade Acceptance is given in payment of a current account for merchandise sold and is due in accordance with the terms of sale as specified between buyer and seller. A Note is given in payment of a Past Due account, and a sight draft is drawn on a customer whose account we do not consider desirable accept on a cash basis.

You will, of course, readily see that we are not changing our terms to you in any respect except as to the method of handling. We are simply asking you to put in negotiable form the obligation you assume in purchasing goods on other than cash terms. There is no added cost or shortening of terms in doing this. In fact, it will mean a distinct advantage to you as it enables you to strengthen your credit position with your Bank and the trade in general and to put into operation the same plan for handling the accounts of your customers, and by discounting your customers' acceptances with your Bank it places the burden of financing your business on your Bank where it rightfully belongs

It is a matter of sound patriotism to place business on the trade acceptance basis. In assuming the burdens of the war, we must make our assets as liquid as possible, must introduce all that works for economy and efficiency, so that business be disturbed as little as possible.

Leading authorities have stated that for this country to assume its rightful place in world commerce after the end of the war, it will be necessary for us to get on the same basis of economical production and distribution as is practiced in other countries. And the trade acceptance offers a means to this end.

We shall be glad to answer any questions and to furnish any information you may require to aid you in putting this plan into operation with your customers.

We thank you for your co-operation in this respect.

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Section 1

This is filled out by the buyer of the goods and returned to the seller. The buyer writes the date, his bank, his town and his name on the blank spaces across the face of the acceptance. At the maturity date the buyer takes up the acceptance at his bank.

Section 2

This section explains what the acceptance is. This section is retained by the buyer because on the back of this part is Section 4, which is explained further down on this page.

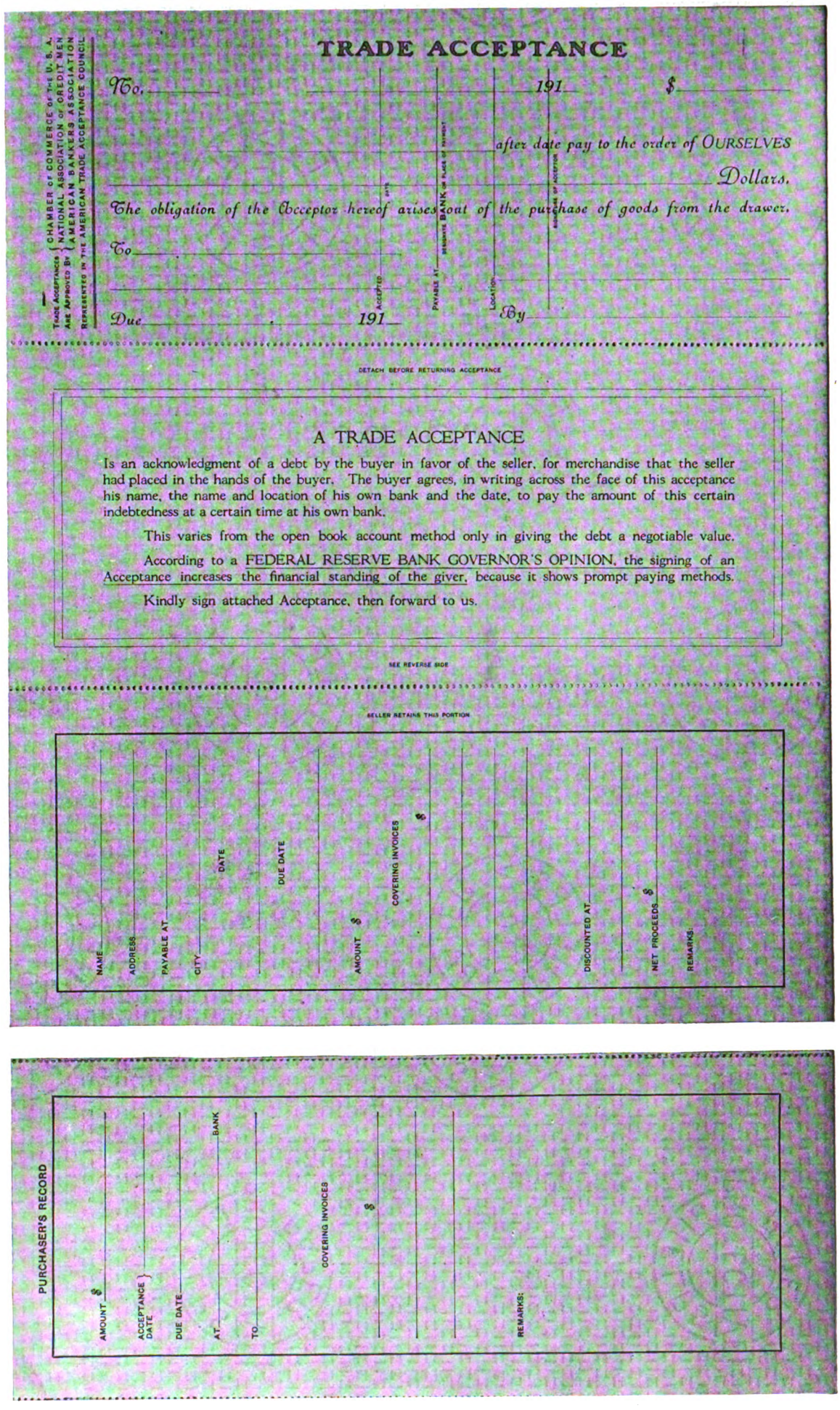
Section 3

This section is not seen by the buyer. It is filled out by the seller and retained in his office as a record of what acceptances have been mailed out and returned and discounted. The face value, discount, etc., are recorded here for the issuer's information.

Section 4

This section is on the back of Section 2. It tells the buyer of the goods what acceptances he has signed and when they are due. By keeping a check on these he is always able to be ready for payments. This section is to the buyer what Section 3 is to the seller.

The acceptance is on Phelps Protective Paper in order to effect a good appearance and make the acceptance look like something other than the cheap form of promissory notes that are so common. The acceptance is NOT a note.



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A Department of

BETTER MECHANICS

No. 52

Maintenance and Adjustment of the Torbensen Axle

By S. T. Williams

TRUCKS are constantly becoming more important in the repair shop, and because of the heavier service require even more careful attention than do passenger car axles. The following are the points that should be observed in work on the Torbensen axle:

LUBRICATION

On shipment from the factory all axles are provided with sufficient lubrication to prevent rust and permit inspection. On receipt, therefore, all axles must be inspected for dirt, etc., and the parts charged with lubricant. The amount of oil for various seasons is as follows:

Type	Summer. Amount	Winter. Amount
O & A	1 quart	1¼ quarts
C	1½ quarts	2 quarts
E	2 quarts	2½ quarts

After the first thousand miles the internal gear cases and the housing should be drained, washed with kerosene, and a new supply of lubricant provided. This treatment should be made after each 5000 miles of use, *and is necessary to remove any particles of dirt or scale which may work into the case or become detached from the housing.* It is essential that the amount specified be used, *as any in excess of that will be wasted.*

At this time all ball or roller bearings should be washed and given a coat of vaseline. Cheap oils or greases may contain acids which will rust the cages, rollers or balls. On the internal gears a thin coat of non-fluid oil, grease, or a graphite mixture may be used. This, too, should be put on quite thin, as any excess amount is wasted, and the lubrication should be done monthly. Each hub has a core permitting a large quantity of soft grease or non-fluid oil to be carried, which works down into the bearings.

ADJUSTMENTS

All adjustments are provided with locks and should not be disturbed unless necessary. The adjustments are made for two purposes—

1—To provide the proper center distance for the gears.

2—To take up wear.

The former is indicated by noisy operation of the axle and the latter by backlash or noise.

DIFFERENTIAL ADJUSTMENT

(See Fig. 1)

At either side of the differential are adjusters which hold the differential and crankshaft bearings in the proper relation and permit correct meshing of the bevel pinion and ring gears. Between these gears there should be only a slightly perceptible amount of backlash, and the engagement should correspond with the center line of the gear. To adjust the differential:

1—Turn the right-hand adjustment to the right and the left-hand adjustment to the left and bring the gears into closer mesh. Do not tighten the adjustments to a point where they cramp the bearings, and stop when the amount of backlash is barely perceptible.

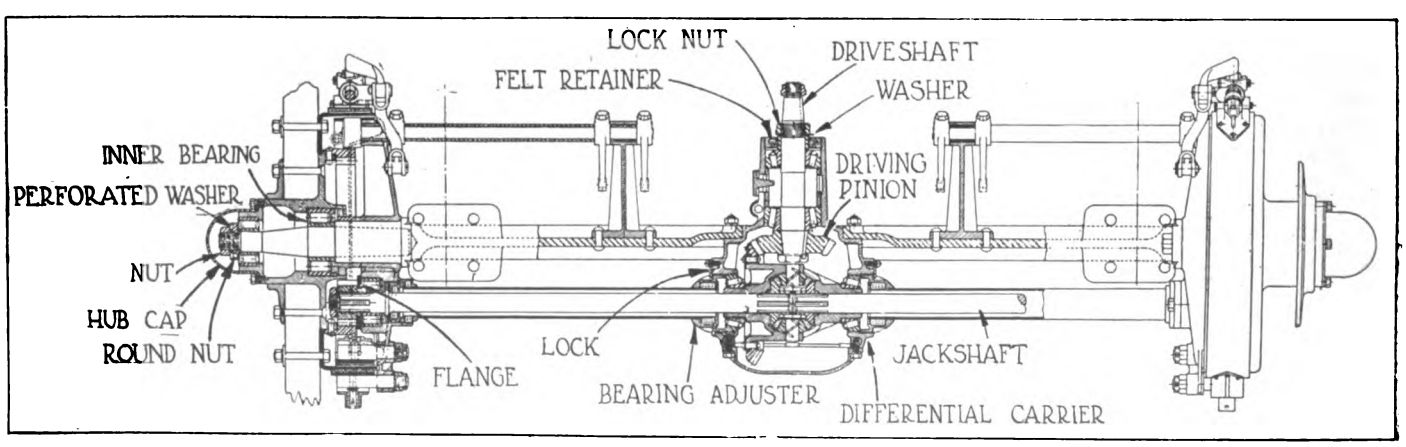


Fig. 1—How to adjust the differential in the Torbensen internal-gear axle

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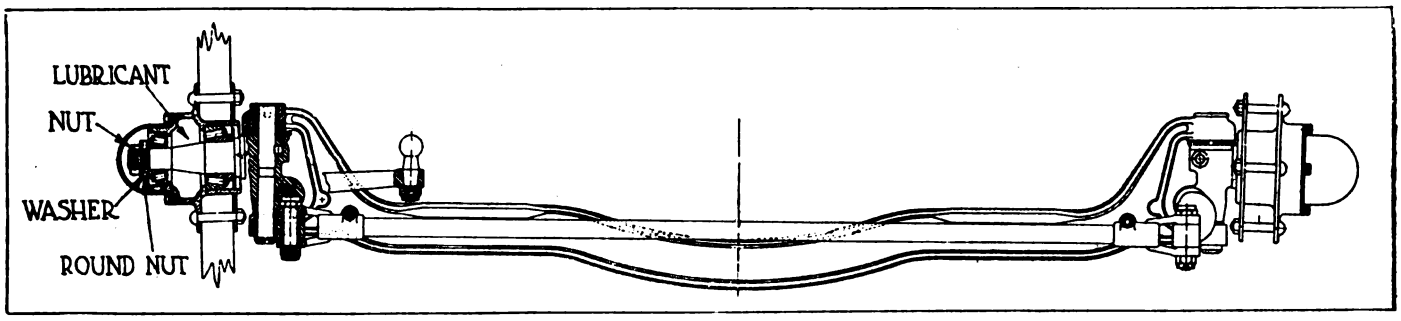


Fig. 2—Arrangement of parts in the Torbensen axle and the location of various adjustments

Bearing and Hub Adjustment

In order to lubricate the bearings or examine the brakes it is necessary to remove the wheels. This necessitates bearing replacement and adjustment, which should be done as follows:

1—Remove the hub cap and the other parts of the hub so that the parts may be lubricated. Then after lubrication assemble the parts in the order torn down.

2—Screw up the round nut in Fig. 1 until it is moderately tight, then unscrew it half a turn.

3—Slip on the perforated washer and see that the projecting pin in the round nut fits into one of the corresponding holes in the perforated washer. Screw up the castellated nut until it is tight and secure it with a cotter pin.

All of these instructions apply either to the straight roller or the taper roller types of wheel bearings.

Tearing the Axle Down

(See Fig. 1)

The following is the method of disassembling the axle:

1—Remove the hub caps.

2—Remove the cotter pin and unscrew the castellated nut.

3—Remove the perforated washer and unscrew the round nuts on the axle.

4—Pull the wheel straight off the hub spindle. If this does not come off easily a special puller fitting over the hub may be used.

5—Remove the inner bearing. Care must be used when doing this, and a chisel or pry should not be applied to the outer race of the bearing. The removing strain should be applied evenly to two sides of the bearing so that it is forced off without pinching.

6—Inspect the internal gear. This should show little evidence of wear and should be tight on the jackshaft.

7—Remove the flange holding the jackshaft in place. It is held by two bolts.

8—Pull the jackshaft out.

9—Remove the rear half of the differential carrier which is held in place by six studs and nuts. The driving pinion and shaft may be now inspected and the condition of the gears and bearings determined. It may be removed by unscrewing the locknut at the end of the driving shaft and taking the shaft out through the rear of the carrier. All other parts of the axle need no further inspection requiring special instructions.

The Assembly

The main point in assembly is to obtain the correct adjustment of the bearing and differential gears, the work, of course, being the reverse of the taking down.

Drive Shaft Bearing Adjustment

1—After assembly of the parts, the locknut on the end of the driving shaft should be tightened moderately tight.

2—Then turn this nut back one-quarter to one-half turn. In this position there should be a barely perceptible slack or end play in the bearings.

3—Draw the outer locknut up tightly and lock both nuts in place by bending over the prongs of the washer.

Adjustment of the Differential Bearings

The taper roller bearings at each side of the differential must be likewise adjusted with a small amount of play in the manner previously described. After adjustment they should be locked in place and before going into service all locking devices should be checked up, otherwise serious damage may occur.

Front Axle

Each of the grease cups on the front axles should be filled with soft grease or non-fluid oil and turned down a half turn each day that the truck is in service. The wheel bearings receive their lubricant from a supply in the hub and this should be renewed monthly.

Adjustments

(See Fig. 2)

The following is the way to adjust the front wheel bearings, the method applying to either straight roller or taper roller types of wheel bearings:

1—Screw the inner round nut up until it is moderately tight.

2—Unscrew it one half turn. The wheels should then turn freely with a scarcely perceptible amount of backlash.

3—Slip on the perforated washer and see that the pin fits into one of the corresponding holes in the round nut.

4—Tighten the locknut and secure it with a cotter pin.

Aligning the Wheels

As is well known, any misalignment of the front wheels will destroy the tires in a short time. This alignment may be tested quickly.

1—Jack both front wheels free from the ground.

2—Spin the wheels and hold a piece of chalk against the center of each wheel tread, drawing a line around its center.

3—Measure the distance between the lines at the front and the distance at the rear at the height of the hub caps.

4—The first distance should be from ⅜ in. to ½ in. less than the distance measured at the rear.

If a steering knuckle or steering arm has been bent the best practice is to replace it with a new one. It is not always possible to bend these back to the correct shape cold, and if heated the original heat treatment will be destroyed and the parts will be too soft for safety. Bent cross rods should always be removed and straightened before attempting to align the wheels, and this may readily be done.

What Is the Best Job You Have Ever Done?

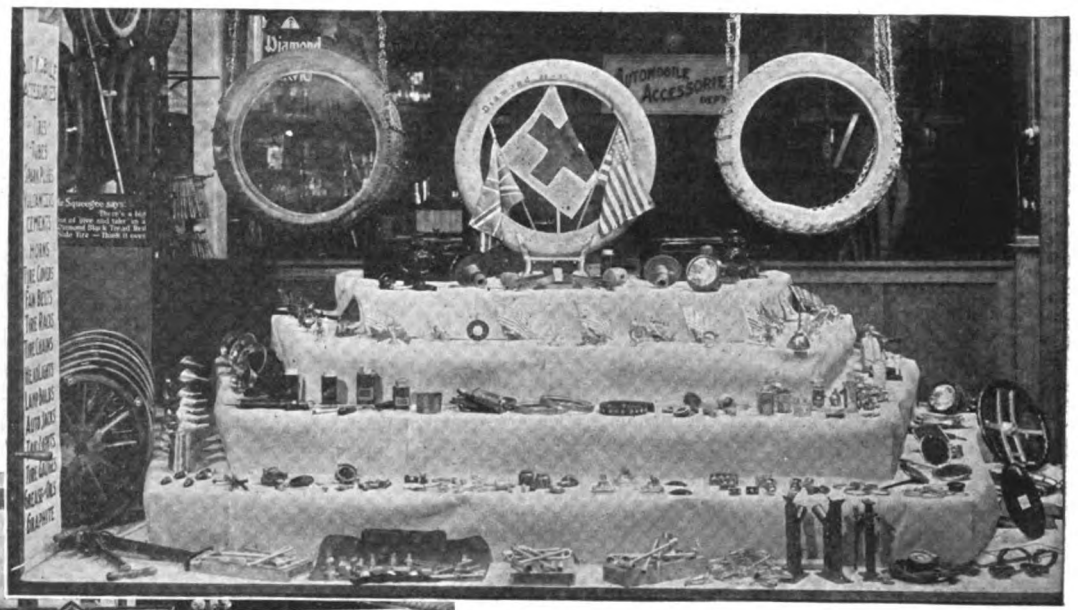
Send a description of it to Motor World. Explain very carefully every step of the work. A few rough sketches should accompany the description: If your contribution is valuable to Motor World readers we will send you a check at once.—Editor.

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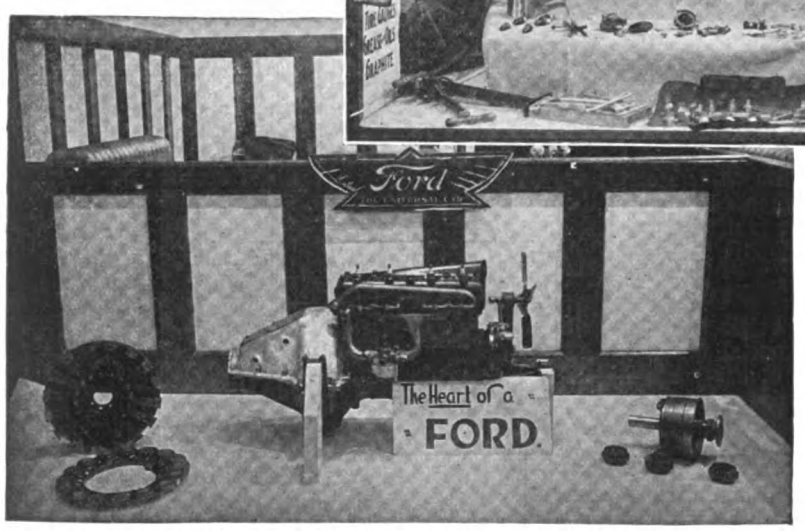
Jack Buckley Gets the $10 Prize

SOME time ago MOTOR WORLD offered $10 for the best window that would be trimmed using Ford materials. The window was to be made to fit the window of the Porter Garage, Porter, Minn., of which Lindquist Bros. are the proprietors. They stated that they had tried all sorts of windows and had run out of ideas.

The stipulation was that the window must be made of Ford materials only and must be photographed at night with the lights on. Out of the photographs received these four have been chosen as the best and that of the Beard Campbell Co., Port Huron, Mich., as the winner. It was trimmed by Jack Buckley.



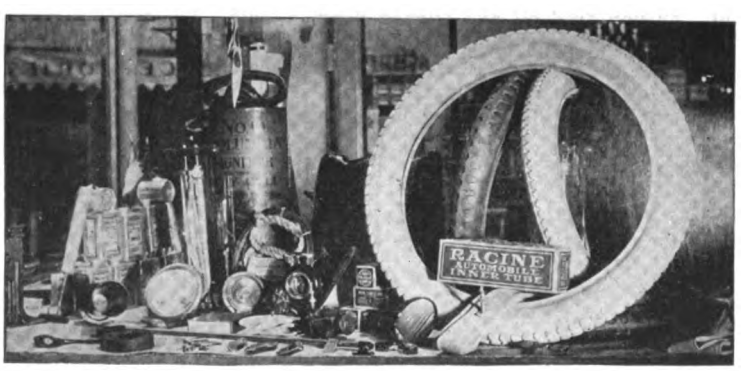
Window by Jack Buckley of Beard Campbell Co., Port Huron, Mich.

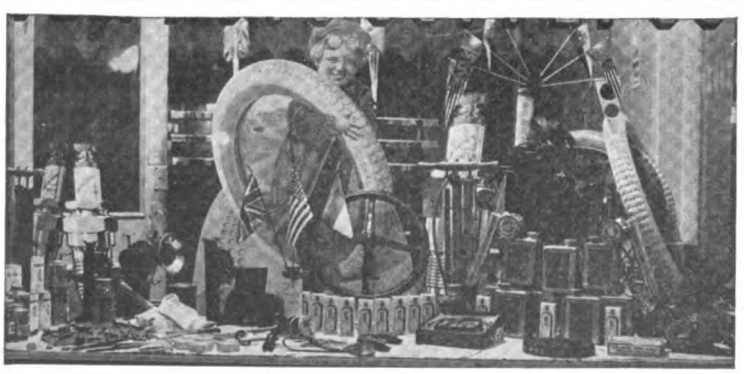


Window by Lee C. Sprague, Sprague's Garage, Fowlerville, Mich.

Right—

Two windows by Lloyd Willister, M. & M. Auto Supply Co., Marinette, Wis.





For criticisms of these windows read the story on this page

Buckley's window—shown at the top of the page—is well balanced, is not crowded, and is made of parts not easily displayed. The secret of it is the terraced stand in the center, covered with white paper, something easily made. A sign or two could have been used with good results.

The Sprague window—at the left—is good, and the sign is particularly well done. The window is not crowded and is neat. For one of a series of windows it has merit.

The M. & M. Auto Supply Co.'s window—the upper of the two bottom windows—is poorly done. It is jumbled. Contrast it with the window at the top of the page.

The lower M. & M. window is equally bad. There is too much in it and there is no unity. The sketches of window trimming principles in the Winter Business Number, Oct. 10, show what should have been done here in the placement of mass and detail.

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Will You Have to Pay an Income Tax on Your Show?

Meeting of Show Managers in New York Discloses That Former Arrangement for Handling Sale of Space May Mean a Large Income Tax on the Proceeds of the Show

NEW YORK, Jan. 10—At a meeting this afternoon of the National Association of Automobile Show Managers at the Hotel Woodstock it developed that the customary arrangement for the sale of space at dealers' automobile shows may mean that the various associations will have to pay large sums of money to the Government.

Under the old arrangement space has been sold at a figure which more than covers the cost of the show, the money paid for this space being in reality a guarantee for show expenses.

After the show a good portion, if not all, of this money has been refunded to those who paid for the space.

Under the excess profit tax law a good share of this rebate would be classed as excess profit and a large percentage of it would have to be paid to the Government.

To Try a New Plan

The situation arose recently in Cleveland and after an investigation Show Manager Fred H. Caley worked out an arrangement that it is believed will prove more equitable to the dealers in the association.

Under the revised plan all of the money that has been paid in will be turned over to Caley as trustee. It will be money advanced to meet the expenses of the show. As none is needed for rent for the show building, decorations and other expenses, the trustee will advance it to the show company and after all the expenses have been paid the money that is not used will be given back to the dealers.

Would Cost $15,000

Under the plan that had been followed for many years the association would have had to pay to the Government some $15,000 or $16,000, which in reality is not income at all, but is merely a sum of money advanced for the expenses of the exhibition.

Manager Clarke G. Powell, Omaha, said his association had long ago discontinued this practice of dealers paying money in and then having it paid back to them again, because it was not a good arrangement. He said the dealers were assessed the sums sufficient to cover the expenses of the show, the assessment being prorated on a square foot basis and what small profit there was, was not so large that it would be at all affected by the income tax. A similar arrangement is followed in Philadelphia.

The fact that large rebates from shows would come under the Government act was not known to some of the managers and they stated that they would at once revise their plans and after the show had been held submit the arrangement to the local internal revenue collector to see if it would merit his approval.

Should Dealers Give Away Tickets?

Considerable time was devoted to the discussion of the advisability of having the trade tickets for sale at cut rates to dealers for distribution to their prospects. The meeting was about equally divided on the subject and no definite conclusion was reached.

So far as the tax on admission passes is concerned some are going to charge a fee every time the user of the pass makes his first daily visit to the show. Other associations are going to charge the first time the pass is presented and an amount sufficient to cover the use of the pass for the number of days the show is open, regardless of whether the user of the pass intends to come every day or not. In some cases the tax is to be absorbed by the show itself.

What Canada Has Done

Manager T. C. Kirby of Montreal won applause when he told of the position to which the automobile men of Canada have continued to hold their show and fight for the continuation of business despite adverse conditions and the war. Kirby is going to run an essay test on the essential character of the industry to be participated in by school children under 15 years of age.

Caley of Cleveland is conducting in a Cleveland newspaper a cartoon guessing contest hooked up to the automobile business. The prizes are $25, $20, $15. $10 and $5 and to the next fifty winners are given two tickets to the show. All this is for the object of giving to the automobile business the favorable attention of the public.

Considerable attention is to be paid by the managers this year to undesirable magazine and trade paper soliciting. In case a solicitor is found operating on undesirable lines he is to be expelled from the show and all other managers of shows are to be notified of this action.

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How Newark Dealers Are

Putting Themselves Across

Have the people in your town a wrong opinion about the motor car business?

Do they believe the car is a non-essential?

Do they believe dealers should shut up shop and go out of business for the duration of the war?

Have their minds been influenced by the adverse publicity that was published when the question of curtailment first appeared in the newspapers? If so, you should read this story.

NOT many weeks ago there came from our national capital, in the columns of the daily newspapers, a great many stories to the effect that the motor car was a non-essential, that the motor car industry was going to be taken over by the government, that the production of cars was going to be curtailed, and that all sorts of things were going to happen to the third largest manufacturing industry in America.

All these rumors set alarm throughout the trade. They gave the public a wrong impression. They set the public mind working toward a wrong economic condition.

They caused people to believe that if we were going to win the war we must drop everything else except the manufacture of guns and ammunition and the equipping of soldiers and let all our peace-time activities die.

The Newark dealers realized that this was wrong.

They realized that if we are to win the war we must, in addition to taking care of our war business, give great attention to our peace business. They realized that if the country is to be strong and able to support a big war, it must maintain its civic life and its business activities to a higher degree, if possible.

They also realized that the motor car is one of the world's greatest essentials at this time when transportation is one of the great needs of the hour. Their problem was how to combat this situation.

After consultation they decided that the influencing of public opinion could be done as it had been done by the numerous newspaper stories. They determined that they would rely upon advertising. They combined once a week in a collective advertisement in which they began week by week to tell their side of the story of the automobile industry.

Their efforts are meeting with success.

Not only do people now realize that the motor car industry must not be cut down but they also realize that other business and activities must be continued if the war is to be prosecuted to a successful conclusion.

In none of these ads is any mention made of the businesses of the dealers. The ads are not for the purpose of selling cars. The primary object is to show the public what the motor car business amounts to and that the trade be permitted and encouraged to thrive and flourish.

Elsewhere in connection with this story is shown the contract into which the dealers entered with the newspaper. It states that no make or model of car is to be advertised, and that each dealer is to pay his pro rata share of each ad. This brings the cost of each advertisement per dealer down to a very small sum and it also permits each dealer to have the advantage of what in advertising papers is known as a rate holder.

One of the most successful ads has been that in which Howard Coffin, who is well known to this industry, set forth his now accepted principle that industry must be expanded and greater activity must be our slogan if we are to win the war.

This particular advertisement attracted a great deal of attention. It was commented upon by business men. The entire business community of Newark realized that what Coffin said applies to all business as much as it did to the automobile business.

Sunday, Dec. 30, the advertisement consisted of a set of New Year's resolutions, wherein the efficient man was made to say that he proposed to make himself more efficient during the coming year, that he would accomplish more physically and mentally, and would do everything to make himself a better worker. In this was the suggestion that the motor car is an aid toward making him this more efficient man.

In addition to these advertisements, the Newark *Morning Ledger*, in which all the ads have appeared, has taken up the work of assisting the dealers in formulating correct public opinion.

Much of the credit for the work should be given to J. Bernard Keeney, motor car editor of the Newark *Morning Ledger*. The original suggestion was Keeney's and he has co-operated throughout with the dealers in this campaign. The advertisements have attracted attention in a great many cities. Three of the advertisements appear on pages 31, 32 and 33. Read them.

A campaign of this kind is inexpensive when supported by the entire trade of the city and the results should prove to be valuable to any group of dealers that takes it up and carries it through in a systematic way.

Contract of Newark Dealers with Newspaper

We, the undersigned, hereby agree to unite in the co-operative advertising plan of the Newark Sunday Ledger as per the following arrangement:

There will be inserted in each Sunday's issue of the Newark Ledger for a period of fifty-two (52) weeks, a series of announcements written for the purpose of promoting and generally improving the conditions relative to increasing the demand for automobiles in the Newark territory.

The size of such announcements to be regulated according to the number of firms entering into this agreement.

All advertisements will be prepared through co-operation with the dealers and following suggestions submitted by them.

No one make or model of car will be advertised. No announcement will contain advertising for any particular car further than the mention of the dealer's name and the line carried by such dealer in space allowed for such mention of dealer in each advertisement.

All copy (including drawings, cuts and other data) to be prepared by the staff of the Newark Ledger at no extra charge above the contract price stated in this agreement.

Each firm entering into this agreement will pay its proportionate share of the cost of such space as is required for each announcement, for a period of fifty-two (52) weeks from the date of first insertion of co-operative announcements.

IT IS FURTHER AGREED THAT BY ENTERING INTO THIS CO-OPERATIVE AGREEMENT, EACH FIRM WILL BE ALLOWED TO ENJOY THE MINIMUM RATE PER LINE ON ALL DISPLAY SPACE INSERTED IN THE NEWARK LEDGER (DAILY OR SUNDAY) FOR ANY AMOUNT DESIRED DURING THE PERIOD COVERED BY THE CO-OPERATIVE ANNOUNCEMENTS.

Payments to be made monthly, each concern to be billed separately for its individual share at the contract price.

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This Ad Won Big Attention in the State of New Jersey

Read the Story on Page 6

PAGE TWENTY-TWO NEWARK MORNING LEDGER, SUNDAY, DECEMBER 23, 1917.

"Expansion in Every Line of Industrial Activity Must Be Our Slogan"—Howard E. Coffin



HOWARD E. COFFIN

Chairman the Aircraft Board, member Naval Consulting Board, member Advisory Commission Council of National Defense; President American Society of Automobile Engineers, member American Society of Mechanical Engineers, member Detroit Engineering Society, member National Automobile Chamber of Commerce, Vice President Hudson Motor Car Company.

The following impressive expression by Mr. Howard E. Coffin, chairman of the Aircraft Board, is a brief summary of conditions in America's industrial welfare as realized by men of sound judgment who "man the ship of state."

"We are hearing a great deal now about restriction in almost every line of American endeavor. Coal is restricted; steel is restricted; industries are to be curtailed; a labor shortage is complained of. If this war is going on over a period of years, as it unquestionably is, there is no use trying to win it upon the basis of 'restriction.' **Expansion in every line of industrial activity must be our slogan.** It is only through keeping our industries going ahead that we can hope to keep this country going as a successful economic machine. It will be easy to float Liberty Loans as long as the country's industries are forging full steam ahead, but it will be hard to finance a church social if we are to begin curtailments in every line of industrial endeavor.

"We must finance not only America's war program, but, to a large extent, that of the Allies as well. Clearly, therefore, one of our greatest industrial tasks will consist of the manufacture of money.

"Our industrial resources are so great as compared with any or all the Allied countries, or with Germany, that the economic conditions existing abroad cannot be taken as a guide to us here. Our entire governmental war program consumes a comparatively small portion of the manufacturing and producing resources of this country

"These facilities must, therefore, be kept going ahead upon commercial products for both export and home consumption, if we expect these industries to continue as a war asset in the production of governmental revenues.

"Let us plan to increase our coal production because we have the coal in the ground. Let us increase our steel production for no one even claims a shortage of ores. Let us increase our available labor supply through the systematic education or conscription of a few of our seventy or more millions of people not now employed in gainful industry."

Mr. Coffin adds that if there is any one lesson which has come down to this Nation through the past three years of European War, it is that—

"We Must Win This War By Industrial Expansion"

The progressive automobile dealers of Newark are of the same opinion as Mr. Coffin. Their slogan is: "Expansion in Every Line of Industrial Activity."

Not only are these dealers expanding the automobile industry of New Jersey, but it should be realized that every sale of a commercial car or passenger car in any part of the United States, has an influence for good upon some other industries as well.

The Motor Truck is indispensible at the Front. It is also the unrivaled "first aid" in the relief of transportation difficulties on this side of the Atlantic.

The Truck is a matchless "expander" of America's industries, enlarging the field of service for every factory from the smallest to largest. The Delivery Car expands the field of the retail merchant. Motor delivery service materially develops the merchants trade. Increased sales gained through such service have their effect upon varied industries who's expansion is vital in the Nation's financial welfare; or, in the words of Mr. Coffin, "the manufacture of money."

The Passenger Car is the busy business man's first aid to health. Health is priceless and the greatest of all necessities in the development of business in these days of keen competition.

The Motor Car is a necessity on the farm. The farm development is quite as important as industrial expansion. The Passenger Car shortens the time between "pay day" on the farm and "spending day" in the city. It has been responsible for more immediate circulation of America's great farm wealth.

The Motor Car has not only expanded its own industry, but has aided in the expansion of everything American from farm to factory.

Every time a Newark dealer or motor car representative anywhere in the United States sells an automobile he increases the power of expansion in some branch of industrial life.

Every time a man purchases a motor car he steps into the ranks of those capable and progressive enough to keep pace with the true Americans who, like these

Newark Auto Dealers Believe in Industrial Expansion

Autocar Sales and Service Co.
"Autocar Motor Truck"
418 Washington St. Mkt. 7900

Herman Bartsch
"Jackson 'F'"
80 Central Ave. Mkt. 9532

Bonnell Motor Car Co.
"Dodge Bros." "Haynes"
520 Broad St. Mkt. 9721

Broad Auto Co.
"Ford"
985 Broad St. Mkt. 3772

Chevrolet Motors Co.
"Chevrolet"
309 Central Ave. Branch Brook 3429

Detroit-Cadillac Motor Car Co.
"Cadillac"
536 Broad St. Mulberry 3210

Doll-Slingerland Co.
"Three"
229 Halsey St. Mulberry 3302

Essex Automobile Co. Inc.
"Oldsmobile"
Broad St. Market 5316

Farr Motor Car Co., Inc.
"Peerless" "Menges"
524 Broad St. Market 7271

Federal Truck Co. of Newark
"Federal Trucks"
365 Halsey St. Market 1046

Fulton Garage Inc.
"Little Giant Trucks"
Front and Fulton Sts. Market 138

H. A. Garshelis
"Diamond T Truck" "Lorraine Truck"
282 Washington St. Market 1626

The Greene Motor Car Co.
"Locomobile" "Studebaker"
90 Washington St. Mulberry 1815

Hardman Tire and Rubber Co.
"Hardman Tires"
30 William St. Mkt. 9050

Hoagland-Thayer, Inc.
"G-M-C Trucks"
300 Washington St. Mulberry 1500

Floyd C. Huff Motors Co.
"Standard 'F'"
244 Central Ave. Mkt. 1145

Hudson Motor Car Co. of New York
"Hudson"
866 Broad St. Market 2216

Hurlburt Motor Truck Co.
"Hurlburt Trucks"
26 Branford Place Mkt. 5011

Isotta Fraschini Motor Co.
"Isotta-Booth" "Woods Dual Power"
71 Central Ave. Mkt. 6229

C. P. Kautzmann Co., Inc.
"Sebring Efficiency Tires"
403 Clinton Ave. Waverly 4045

King Motors Inc.
"King"
232 Halsey St. Market 2012

King Sales Co.
"Ford"
449 Central Ave. B. B. 5080

Marmon Co. of New Jersey
"Marmon"
90 Washington St. Mkt. 3619

Manufacturers' Tire and Rubber Co. Inc.
"Tires, Tubes, Etc."
218 Halsey St. Mkt. 2228

North Jersey Motor Vehicle Co.
"National"
544 Broad St. Mkt. 3741

North Newark Auto Co. Inc.
"Chevrolet"
Salesroom, 32 Halsey Street
Service Station 37 Bloomfield Ave. B. B. 5466

Paddock-Zani Motor Car Co.
"Chevrolet"
894 Broad St. Mulberry 2271

Paige-Detroit Co. of Newark
"Paige-Detroit"
526 Broad St. Mkt. 3875

Wm. Parkinson Motor Sales Co.
"Buick"
372 Central Ave. Mulberry 2209

H. G. Pederson
"Four-Davis" "Sandow Truck"
228 Central Ave. Mkt. 9246

Reo Motor Car Co.
"Reo"
37 William St. Mulberry 3030

Rice-Macrae Motor Truck Co.
"R-B Trucks"
226 Halsey St Mkt. 3789

Sanderson Motor Car Co.
"Daniels 'F'"
406 Central Ave. Mkt. 3619

Stanley Steam Car Sales Co.
"Stanley Steam Cars"
209 Central Ave. B. B. 5722

Calvin Tomkins Electric Garage Co.
"Ward Electrics"
287 Halsey St. Market 8426

Veitch-Hall Motor Car Co.
"Jordan"
254 Central Ave. Mkt. 466

W. J. B. Motor Truck Co. Inc.
"Republic Trucks"
291 Halsey St. Mkt. 8684

F. H. Walsh Auto Service Co.
"Stewart Truck" "Kelly Springfield"
313 Central Ave. B. B. 740

The White Co.
"White"
33 William St. Mkt. 745

The Whiting Motor Co.
"Menges"
486 Central Ave. Mkt. 7876

W. C. D. Motor Car Co. "Chandler" 230-241 Central Ave. Market 1571

Wiener Tire Co. "From Tires and Tubes" 214 Halsey St. Mkt. 4561

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The People Who Read This Ad Now Know Cars Are No Luxury

Read the Story on Page 6

AGE TWENTY-SIX NEWARK MORNING LEDGER, SUNDAY, DECEMBER 2, 1917.

The Motor Car Is a Necessity

Recognized in its true light by the Government, the business world and the individual buyer, the Automobile now casts aside the words "Pleasure Car" and appears properly classified as a vehicle of SERVICE—a "Passenger Car."

Have you been a member of the "Ponderers' Class?".

Have you often wondered how your neighbor could "afford" a car?

Cast aside the wonderment. Quit the "Ponderers' Class." Apply the same principles of sound judgment and ask yourself: "Can I afford to be without an automobile?"

THINK—reason with yourself—what is your time worth?

Is your neighbor's day more productive than your hours of business activity?

The Passenger Car and commercial vehicle "stretch time" by shortening distances.

The doctor makes more calls; the salesman "covers" larger territory; the merchant arrives at his store earlier and in better humor; thanks to the Passenger Car.

Everybody's day is longer, brighter, less tiresome and more productive because the distance from the home to the office has been shortened; the business trip has been speedier and more pleasant; the open air and sunshine have played cheerful parts in the day's endeavor.

Such days have a "Dollar Value" which shows on the right side of the Ledger.

These days are good reasons why your neighbor can "afford" a car.

Your neighbor's ruddy-cheeked children, the happy, contented mother, the dear old grandma with "never an ache or pain," are envied by everybody who sees them. They are happy, healthy specimens of human nature, thanks to the afternoons and Sundays spent in the Passenger Car.

The auto-owner not only lengthens his own business-day, but he also lengthens his family's living-days.

The scarcity of doctor's bills—the absence of long and costly health trips for a sickly wife or feeble grandma, are reasons why your neighbor can afford" a car.

The active, healthy mind of a robust child is priceless. The child in the open air drinks in through observing eyes the true picture of the grandeurs of hills and valleys. The mental picture of lake, river, mountain, seashore, forest, field and farm is more convincing and more beneficial when developed on a tour of the National and State highways than when drawn from the flat maps and dull pages of a geography.

History has dotted the State with places of interest.

These places can be visited by the Passenger Car.

Thus are Geography and History taught in practical manner with the aid of "Daddy's car."

In these features alone the motor car excells as an educator. At the same time the great out-of-doors is building tissues of brain and muscle. A priceless combination of education and health-building.

How can anything as NECESSARY to you children's physical and mental welfare be considered a luxury?

That which lengthens the busy man's day is **no luxury.**

That which increases your field of business endeavor is a **necessity.**

That which lengthens the life of every member of your family **can well be afforded.**

Owning that which saves health, time and money is **true economy.**

That which moulds a healthy family and assures more efficient employers and employees is **genuine American Patriotism and Progressiveness.**

All these are embodied in the possession of an automobile.

All that a passenger car is to the individual, the commercial car is to the business house.

When you have purchased a car you have multiplied your efficiency by two or more; you have retained a family doctor at no extra cost; you have employed a tutor for your children, a physical instructor for your entire family; you have acquired a personal and business asset that you **cannot afford to be without.**

THESE PROGRESSIVE AUTO DEALERS OF NEWARK

are ready to give you unselfish, unbiased assistance in purchasing. To keep in step with business and social advancement

Autocar Sales and Service Co.
"Autocar Motor Truck"
418 Washington St. Mkt. 7900

Herman Bartsch
"Jackson 'F'"
80 Central Ave. Mkt. 9532

Bonnell Motor Car Co.
"Dodge Bros." "Haynes"
520 Broad St. Mkt. 9721

Broad Auto Co.
"Ford"
985 Broad St. Mkt. 3772

Chevrolet Motors Co.
"Chevrolet"
309 Central Ave. Branch Brook 3429

Detroit-Cadillac Motor Car Co.
"Cadillac"
536 Broad St. Mulberry 3240

Doll-Slingerland Co.
"Betenbert Three"
229 Halsey St. Mulberry 3302

Farr Motor Car Co., Inc.
"Peerless" "Monroe"
834 Broad St. Market 7271

Federal Truck Co. of Newark
"Federal Truck"
356 Halsey St Market 1066

H. A. Garshelis
"Diamond T Trucks" "Larrabee Trucks"
282 Washington St. Market 1626

The Greene Motor Car Co.
"Locomobile" "Studebaker"
90 Washington St. Mulberry 1815

Hardman Tire and Rubber Co.
"Hardman Tires"
30 William St. Mkt. 9050

Hoagland-Thayer, Inc.
"G-M-C Trucks"
300 Washington St. Mulberry 1500

Floyd C. Huff Motors Co.
"Standard 'F'"
344 Central Ave. Mkt. 1145

Hudson Motor Car Co. of New York
"Hudson"
866 Broad St. Market 2216

Hurlburt Motor Truck Co.
"Hurlburt Trucks"
26 Branford Place Mkt. 5611

BUY A CAR NOW

Isotta Fraschini Motor Co.
"Scripps-Booth" "Woods Dual Power"
71 Central Ave. Mkt. 4229

C. P. Kautzmann Co., Inc.
"Sebring Efficiency Tires"
403 Clinton Ave. Waverly 4045

King Sales Co.
"Ford"
449 Central Ave. B. B. 5660

Marmon Co. of New Jersey
"Marmon"
90 Washington St. Mkt. 3619

Manufacturers' Tire and Rubber Co. Inc.
"Tires, Tubes, Etc."
218 Halsey St. Mkt. 2226

North Jersey Motor Vehicle Co.
"National"
544 Broad St. Mkt. 3741

North Newark Auto Co. Inc.
"Chevrolet"
37 Bloomfield Ave. B. B. 5406

Paddock-Zusi Motor Car Co.
"Chalmers" "Chevrolet"
894 Broad St. Mulberry 2271

Paige-Detroit Co. of Newark
"Paige-Detroit"
526 Broad St. Mkt. 3875

Wm. Parkinson Motor Sales Co.
"Stutz"
372 Central Ave. Mulberry 2209

H. G. Pedersen
"Four-Davis" "Sanborn Trunk"
228 Central Ave. Mkt. 9246

Reo Motor Car Co.
"Reo"
37 William St. Mulberry 3030

Rice-Macrae Motor Truck Co.
"R-B Trucks"
226 Halsey St Mkt. 3750

Sanderson Motor Car Co.
"Daniels 'F'"
496 Central Ave. Mkt. 3619

Stanley Steam Car Sales Co.
"Stanley Steam Cars"
299 Central Ave. B. B. 5722

Calvin Tomkins Electric Garage Co.
"United Trucks"
287 Halsey St. Market 8426

Veltch-Hall Motor Car Co.
"Jordan"
254 Central Ave. Mkt. 466

W. J. B. Motor Truck Co. Inc.
"Republic Trucks"
291 Halsey St. Mkt. 8684

F. H. Walsh Auto Service Co.
"Stewart Truck" "Kelly Springfield"
350 Halsey St. Mkt. 8684

The White Co.
"White"
33 William St. Mkt. 745

The Whiting Motor Co.
"Mercer"
486 Central Ave. Mkt. 7876

Wiener Tire Co.
"Penn Tires and Tubes"
211 Halsey St Mkt. 1361

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The Car's Importance in National Life—A Big Lesson

Read the Story on Page 6

Every Turn of the Motor Car Wheel Vitalizes Our Industrial Progress



WHEN you have watched the wheels of trucks and delivery cars grinding their way over the pavements of city streets; when you hear the hum of the pleasure cars as they speed along the highways; when the roar of the racing car echoes around the speedway; when mountains of tires catch your eye as you pass the window display of the dealer; when impressive announcements of passenger cars and commercial vehicles awaken your desires to own the first car or purchase a model of newer design, HAS IT EVER OCCURRED TO YOU THAT EVERY REVOLUTION OF A WHEEL OF A MOTOR CAR HELPS TO TURN THE WHEELS IN A MONUMENT OF AMERICAN INDUSTRY—A GIANT FACTORY?

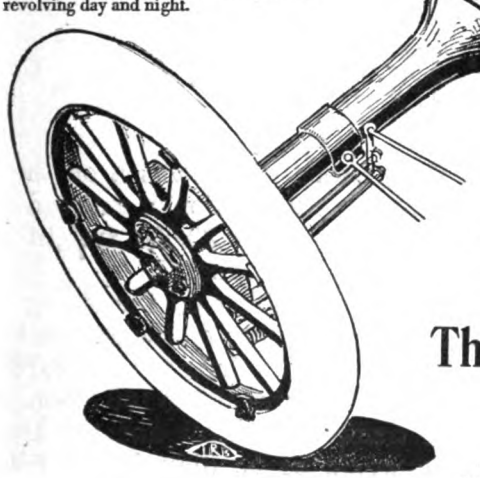
The owner of an automobile is so often "wrapped up" in the matchless pleasures derived from the touring car that he seldom realizes his personal importance in America's automobile trade.

The factory, the dealer, the salesman and the mechanic are indeed important in the progress of the industry. However, you must

CONSIDER THE VITAL IMPORTANCE OF THE BUYER.

All the features of the business, it's success and growth must finally depend upon the public demand. A demand created and upheld by you, Mr. Auto Owner.

It is your quick realization of all the advantages of the car, both passenger and commercial; your final judgment of the merits of motors; your decision to buy, to drive far and often; to keep the cars in use throughout all seasons; in fact, it is your determination to keep the wheels of your auto turning that keeps the factory wheels revolving day and night.



You and all other owners of motor cars are keeping thousands of workmen busy.

The workbench, the paintshop, the assembling plants, the offices and the salesrooms of these factories owe their activities to you and thousands of progressive Americans like you.

It is well for you to realize all these things as well as the pleasure derived from possessing an automobile.

IN THE FUTURE TAKE PRIDE IN YOUR POSSESSION.

Each time you and your family step into the car for a health-inspiring spin through the open country; whenever the truck or delivery car leaves your place of business to extend service to your patrons, remember that each dollar of the original cost, each cent of the "up-keep," has helped to buy the fuel to turn the wheels of factories; factories that contribute to the nation's wealth and the advancement of skilled labor.

If you fully realize these features of possessing an automobile you will surely take a greater interest in autoing for pleasure and for business reasons. These features, added to the pleasures and commercial value in owning a car, should stimulate your desire to own one NOW.

Now is when a car is a necessity if you would reap your full share of pleasure. NOW if you would hold your position or advance in the race for business supremacy.

WITH the desire comes the need of unbiased, expert advice. Such advice can be received from any of

These Progressive Auto Dealers of Newark

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"Betenbert Tires"
220 Halsey St. Mulberry 3302

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403 Clinton Ave. Waverly 4045

King Sales Co.
"Ford"
449 Central Ave. B. B. 5000

Marmon Co. of New Jersey
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"United Trucks"
287 Halsey St. Market 8436

Veitch-Hall Motor Car Co.
"Jordan"
254 Central Ave. Mkt. 466

W. J. B. Motor Truck Co. Inc.
"Republic Trucks"
291 Halsey St. Mkt. 8084

F. H. Walsh Auto Service Co.
Stewart Truck" "Kelly Springfield"
350 Halsey St. Mkt. 8684

The White Co.
"White"
33 William St. Mkt. 745

The Whiting Motor Co.
"Mercer"
486 Central Ave. Mkt. 7876

Wiener Tire Co.
"Penn White Ash Tubes"
214 Halsey St. Mkt. 4561

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Editorial Observation

New York's War Show

THERE is no gainsaying the fact that war conditions numerically reduced the attendance at the Grand Central Palace Show. Another fact was equally evident, namely, that the attendance last week averaged higher in real prospects and actual buyers than the show of last year.

There were fewer curiosity seekers. There were more moneyed people than at any previous show—that is, the percentage was higher, and if actual attendance figures could be analyzed, unquestionably the total attendance of people well able to buy even high-priced cars might exceed that of a year ago. Exhibitors of higher-priced cars, after a few days' reflection on the show, consider it a more potential selling show than that of a year ago.

A casual analysis of the attendance indicated that there were fewer of New Yorker's ultra-wealthy and fashionable set than at former shows. There were fewer women. There were fewer young men between 20 and 30.

On the other hand there were more middle-aged people who seemed to represent many industries that ar making a great deal of money out of the present war.

This opinion seemed general throughout the show. Unquestionably a new class of wealth is being created throughout the country because of war orders, and many of these are bigger buyers of medium- and high-priced automobiles.

There was no evidence in the show of a holding back of purchases with the thought that cars might become cheaper. Neither was there any apparent eagerness to hurriedly purchase for fear that production might be curtailed and there would be a scarcity.

The advertising campaign and selling arguments advanced by some over-zealous distributers that intending purchasers had better buy now for fear of a shortage of cars due to shortage of material, government action, shortage of coal, or any other alleged condition has fallen miserably flat.

Such a campaign was early interpreted as purely a selling scare on the part of some dealers and an effort to prematurely close sales. Undoubtedly such advertising is going to react as a boomerang on those who pioneered it.

The Coal Situation

A LITTLE over a week ago there were 107 ocean liners delayed from sailing from Atlantic ports due to a shortage of coal. During the last week—the week of the New York show—it is reported that for 4 days not an ocean liner was able to clear from an Atlantic port because of the coal shortage.

These are facts that mean a great deal to all industries, and when there is not enough available coal for such needs as our ships to carry supplies to our army in France, as well as to our Allies, it is high time that everyone bend every effort to clear up this immediate situation.

With schools closing in nearly all of our large cities, with churches holding union services, with many office buildings closed part time, it is pertinent that everyone should more rigorously look to the conservation not only of present fuel supplies, but also of our railroad equipment.

Undoubtedly the present coal shortage on the Atlantic seaboard is due to a congestion of railroad cars. A report 10 days ago showed 38,000 freight cars clogging the tracks along the seaboard.

Not only are these cars filling up the sidings but they are obstructing main lines and the congestion is not limited to 10 or 150 miles along the seaboard but is extending back in some cases 100 to 150 miles.

If the railroad tracks were clear and the freight cars empty there would be no difficulty in getting ample quantities of coal to tide water, where it is needed to fill the bunkers of ocean vessels.

With this extreme condition ruling along the seaboard, every citizen must be more considerate and give greater co-operation in this movement to relieve freight congestion. The need is so urgent that normal procedure is upset and every person must adopt supernormal methods to do his part in relieving the situation.

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Dealers must give more attention and quicker attention to unloading motor car shipments. There must be no delay. The demand is imperative. Where a freight car has waited a day and a half extra effort should be made to get it unloaded in a matter of hours.

If every motor car dealer did this, if every business house receiving freight did this, and if the hours required to unload a car were reduced to 8 *or* 10 *an immeasurable job would be done to relieve the general condition and expedite the shipment of supplies to our soldiers over seas as well as coal to all ocean-going vessels.*

When the flow of men and materials and foods and clothing for our armies, and those of our Allies, is being held up, it is time for united co-operation. It is time for the man in Kearney, Neb., to do his part. It is time for the man in Macon, Ga., to do his. It is time for the man in Bangor, Me., to do his. It is for the man in Lawton, Okla., to do his.

There must be no holding back when the urgency is so imperative as it is to-day.

The Essential Motor Car

THERE never was a time since Charles E. Duryea ran his first motor car in 1892 that the car has such an opportunity to demonstrate its essential nature as it has to-day.

Our national transportation system centered in railroads has practically broken down. Nature has served out more extreme weather conditions than are usual at this season of the year. This is particularly true in the great factory zone lying east of the Mississippi River and north of the Ohio.

The East has had colder weather than any time in the last 6 years. The Central West has been tied up with snow worse than for many years.

This condition, coupled with the shortage of man power, due to so many of our people being in the army; coupled with the shortage of coal due to inability of railroads to handle it, and due to the general uncertainty in many industries, has brought the motor car and the motor truck into the limelight as never before.

There is a real need for motor cars to-day. The need is greater than that of a year ago. In places, coal merchants are not able to deliver as they should. The half-ton deliveries made to a home each week instead of 5 tons being delivered at one time have added to the mileage of vehicles making deliveries so that to-day they cannot serve as many customers as a year ago.

Motor cars have been pressed into emergency coal service and thousands of car owners have carried bags of coal home in their machines. The same is true of barrels of wood that have been delivered by the car owner to his own house when the coal and wood merchant was not able to make the deliveries.

Such imperative needs for a car were not realized before.

Looking ahead to the coming summer with the same thought in mind, there are undoubtedly hundreds of thousands of families who realize that there unquestionably will be a shortage of railroad passenger trains and not sufficient capacity to handle the travel. There will be hundreds of thousands of families wishing to visit their sons in the different cantonments and to be certain they can do so they will have to go by motor car. The railroads will be glad to be relieved of such traffic.

The removal of snow and ice is not going to bring the railroads back into normal condition to handle the traffic. The shutting off of millions of furnaces and stoves around May 1 is not going to materially relieve the situation because at that time the great quantities of war munitions for our army will be moving.

For example, our Liberty engines are not yet in production, but they will be in production in March and there will be heavy shipments during each month thereafter. These will call for great railroad capacity and they must be shipped. No matter how many passenger trains are cut off, our war munitions must be carried to seaport.

Huge quantities of ammunition, shells, etc., will have to be moved from the great manufacturing zone of the Great Lakes to seaboard and this will be at its height during the spring and summer. Parts for large guns, which are being manufactured in the zone of the Great Lakes will have to be removed to tide water.

Great quantities of food supplies must be moved because we will have perhaps a million men to feed in France who last year were scattered over the country and all of their food, clothing, and every necessity represents added railroad transportation as compared with the summer of 1917.

To this add the fact that we must furnish more supplies by way of food to England's army of 5,000,000 men. We must furnish more to the great French army. We must furnish more to the great Italian army. We must furnish more to the Portuguese army; in short we must furnish more to all our Allies.

All of this tremendous additional equipment must pass over our railroad lines. These railroad lines are not so well maintained as a year ago. Their locomotives are not in such good condition. Their freight cars are not in such good condition. The crews are

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not so competent, because from the railroads have gone over 15,000 trained men to assist operating the railroads of France.

With all these thoughts in mind do not overlook the great fact that passenger cars will be more used than ever before. They must be. People will not be able to reach their summer resorts, except by motor car. Many families will not be able to get railroad transportation to the cantonments and will have to use their motors.

Unquestionably the coming summer will usher in an enlarged field for the motor car in long-distance work, and where a family last year made the trip from Colorado to the White Mountains largely for pleasure, the coming summer will see them make it because of necessity.

The Essential Truck

SOME months ago, Great Britain stopped railroad trains carrying freight within the zone of 20 miles of the center of such cities as London, Liverpool, Bristol, Coventry, etc. For example, a merchant could not ship freight out of London to any point within 20 miles of his place of business. It had to be shipped by motor truck. Conversely any factory or business house within 20 miles of the heart of London could not ship its freight into the city. It had to go by motor truck.

Within the zones of large cities in America radical action is already being taken to relieve the congestion of the railroads. For example, in Philadelphia and some other centers the railroads cannot be used for carrying freight within the city limits, that is, from a depot in the north end of the city to a depot in the south end.

Such freight must be moved by motor truck or horse vehicle.

Such regulations are bound to become general in practically all of our large cities located in the traffic congested zone which might be broadly outlined as East of the Mississippi and north of the Ohio.

In several of our cities the 25-mile law will undoubtedly be established, namely, that of preventing the shipment of merchandise within a radius of 25 miles in the heart of the city, the same as the English plan.

At the start it would be unfortunate if the 25-mile limit were set. A better plan would be to start a 10-mile limit, then raise it to 15, next to 20 and finally to 25. There would not be so much confusion with such a plan.

Dealers should immediately lay plans for such eventualities as a 25-mile rule if they are located within the large cities. Their salesmen should be prepared in advance on such a selling campaign.

When such an order comes it will come over night, and there will be a hysteria the next morning. Such can be avoided, at least, to quite an extent, by preparing in advance.

The up-to-date dealer will have the volume of business moved from the center of his city to outlying stations in the 25-mile zone all tabulated. He will know how many truck loads of freight must be taken each day from his city to each of these outlying towns. He will know how many trucks are necessary for this work. He will know the best streets for such work, and if there are not well-paved streets at present, he should immediately urge his city council to prepare meeting such an exigency by improving the streets.

Careful preparation is 90 per cent of the work. There will be enough congestion when such a situation arises in spite of the best preparation, but without careful preparation there will be chaos.

The Long-Distance Truck Haul

THOSE countries that have risen to great distinction in the history of the world have risen by means of their improved system of transportation. No country has ever gained distinction and become a leader nation without being a leader in transportation.

Transportation is one of the great civilizing and educating forces of the world. It brings men face to face in business who were previously strangers. It breaks down wrong conceptions between man and man.

Heretofore, the motor truck has not been considered an economical means of transportation for distances above 75 miles. Some industries declare that the motor truck cannot be used economically when the one-way haul is over 50 miles. There are others who say the motor truck is more economical than the

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railroad when the haul is 75 miles. There are a few who declare that it is more economical for them to use the motor truck when the haul is 100 miles.

This difference of opinion largely depends on the nature of the roads, the nature of the merchandise and the degree of promptness necessary in handling the goods.

To-day, for deliveries within such distances, the motor truck is quicker than the railroad and as such it is a more desirable means of transportation even if the cost may be higher.

Take a parallel. It is cheaper to send a motor car by sail-boat from New York to Cape Town or Melbourne or Buenos Aires or London than by a steamboat. Then why does the exporter demand that his motor car be shipped by a steamboat when the cost is greater?

The answer lies in the economy of time. You can rely on the steamboat making the trip in 20 days to London, or a month to Buenos Aires, but you can place no reliance on the sailboat. The length of time it requires to make the trip depends on the caprice of the winds. It may be 2 months and it may be 3.

No business man in Buenos Aires would be content to sell motor cars if shipments were made by sailboat because he could not rely on shipments. He is willing to pay the higher price of the steamboat in order to get his goods on schedule.

Look at the comparison of the motor trucks. For short distance hauls, with the exception of a few winter days, the schedule is practically reliable. The merchant can rely on his goods arriving within a few hours of schedule rather than several days as in the case of railroads. That merchant is willing to pay the higher price for schedule deliveries.

One merchant may answer that the cost is so small to ship goods by railroad from the heart of the city to a point 21 miles out that it is out of the question to use the motor truck. He cites the case of a grocer whose margin of profit is so narrow that he could not afford to pay the price for truck delivery as compared with railroad delivery. He declares that the grocer would have to raise his prices and that the people would pay them. He makes out a pretty good case.

This merchant forgets, however, that it is that cheap short haul that has put the railroads in bad condition at the present time. The railroads are losing money on the short haul and they have been tacking these losses onto the long haul. It has been bad business and the merchant and the buyer have had to pay the bill. The rates have been economically unsound. This fact is agreed to by many railroad and expressmen. They admit the losses by the railroads on the short haul.

With this fact agreed to, why should the motor truck maker and the motor truck dealer continue with this transportation fallacy?

It is such fallacies that have to be uprooted in war times. As one great transportation man said a few weeks ago, "the element of cost cannot and must not be considered to-day as it was a year ago."

The motor truck dealer must view motor truck transportation under war conditions and under the new conditions created by the stress of war whether the merchandise in question is directly connected with the war or not.

Do Your Part

WE are too prone to speak of the government as "down in Washington," and criticise the people handling the government as if they were a different race from ourselves and as if they had nothing in common with us and as if we had no relations with them.

This is the old fallacy of a political government, a government in which we elect men to play politics and enact stupid legislation.

To-day we have a different government in Washington. It is a government of industries and a government of the people. The government is no longer confined to the city of Washington or the District of Columbia. It has spread to every motor car factory whether it is manufacturing trucks, aircraft engines, or other munitions of war. The government has spread to every city of the land. It has spread into every organization of dealers. It has spread into every household.

To-day it is not the government "down in Washington," but it is the government in our own town, in our own organization, in our own factory, in our own repairshop, in our own garage. *We, as individuals, are more a part of our government than ever before.* We must be a part of it. We must work with it. We must work in obedience to its requests. We must aid it.

The Fuel Administrator in Washington cannot relieve the coal situation unless every factory or business house unloading a freight car, or loading one, does it promptly and with the least possible delay. The Fuel Administrator cannot conserve enough fuel to keep all of the motor cars, motor trucks, and tractors of the country running, as well as keeping the Allies supplied unless we all do our part with our individual cars in cutting down the waste. Each garage must do its part. Each repairshop must cut out the leaks. Each dealer must play his part.

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Winter Business

Plans Without Action Fail

Send Out These Car Repair Letters

Keep your shop busy this winter. It can be done, as has been proved by a large number of dealers, garagemen and repairmen who have sent out letters and solicited business and found that the old-time loss period has been made one of profit. Send out these letters about 5 days apart. Start NOW.

Car Repair Letter No. 1

Your car will have a busy summer.

So shall we.

But now neither your car nor our shop is as busy as they will be in a few weeks.

The summer's service has been rather hard on your car and there are some things that need to be done to it before it is run another season.

If you will bring your car to us now for fixing and adjusting we can assure you far better service than later when cars will be coming in just ahead of the spring touring season. We are always rushed then, which works to the inconvenience and disadvantage of both ourselves and our customers.

Right NOW we can give you plenty of time and attention and assure you lower prices than later on. It will assure you that your car will be ready later when you want it and will be a benefit to us in that it will keep us busy now when work is slack and relieve us of the rush when spring comes.

Please consult with us as soon as you conveniently can, because it is our desire to give you the best service and prices at our disposal.

Car Repair Letter No. 2

A few days ago we requested several of our car owner friends to bring their cars in for fixing and adjusting now and help us keep our shop busy and also to relieve us of the big load of work that comes just ahead of the spring season.

Quite a number responded and their cars are being rapidly fixed up in a manner and at a price that is highly satisfactory to them.

We have just a little leeway left in our working schedule and would like to handle a few more cars now instead of later in the season.

After a summer of use there probably are numerous little things that ought to be done to your car, and we will consider it a favor if you will let us serve you now instead of later in the season.

We have the best shop in town, capable men, up-to-date machinery and can give you satisfaction. That we guarantee.

Drive down any day and let us inspect your car in order that you may know its real condition. Sometimes there are little things that you don't notice until they become big troubles.

Car Repair Letter No. 3

Running a car season after season without having it touched by a skilled mechanic is often considered a point of great merit in the car. But generally cars that aren't looked after once a year go to pieces all of a sudden some day and the owner can't understand why.

The reason is that the car was full of little bits of trouble all the time. These troubles kept accumulating, but didn't affect the car's operation. Then all of a sudden they all grew big at once—and the end came.

After every season, especially one such as we have just had, your car should be looked over and at least tuned up.

It is our suggestion that you bring it to our shop, let our mechanics inspect it and advise you as to its condition.

Incidentally, we can give you better service NOW than later, because we are right between the summer and spring rushes. We have plenty of time and room to handle your work.

Drive down any day.

Are You Selling Farm Lighting Systems?

EARLY in the winter Motor World pointed out the good business that lies for dealers and garagemen in the sale of farm lighting systems. It is a new field and whether the motor car men get it depends on whether they take it up NOW. An Ohio jobber says he is doing a good business in farm lighting systems, but that he generally has to place the business with small electrical contractors because the motor car men say: "Yes, it surely looks like a good thing—but I guess I won't take it on NOW." The result is that the small electrical men are grabbing this baby business and will have it all sewed up unless the motor car men grasp the opportunity. Why let a good thing get away from you? True, you may have to make a new arrangement within your own organization if you are to handle it, but isn't that worth while if you can make some extra money? The jobber says the farm lighting dealers have found many country houses all wired, waiting for the coming of electricity, and in those cases the job is easy. The opportunity is here—and BIG.

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Send Out Some of These Letters NOW

SENDING out letters is one of the easiest ways there are of getting business. It is an inexpensive form of sales call. A man can't begin to compete with a letter when it comes to the cost of selling, and oftentimes the letter is more effective than the call of a salesman. Comb your prospect list; throw out the dead ones; line up those that look like the best prospective buyers and bombard them with business-getting letters.

Trailer Letter

Did you ever stop to consider that it isn't necessary to have an expensive motor truck or motor delivery wagon in order to carry things around town?

Did it ever occur to you that a regular motor car, that is used for touring Sundays, can do this work just as well as a delivery wagon and without harming the automobile—on one condition?

That condition is that you provide the car with a Blank Trailer.

The Blank Trailer is quickly and easily hitched on behind any car. It will carry a load up to a half ton. It saves the car from ruin through being used as a truck and gives the car owner both a car and a truck for a fraction of the cost of both.

Inclosed is a booklet telling about the Blank Trailer. You will find it worth your while investigating.

Telephone some morning and let us show you how easy a Blank Trailer can carry a load for you. We'll carry a load for you free and you won't be under any obligation either.

Racing Body Letter

Did you ever see a car with a rather racy type of body without sort of wanting a car like that? You probably figured, like most of the rest of us, that you would like such a car, but wouldn't want to go to the expense of fitting it up.

Right there is where you may have overestimated the situation. It doesn't cost as much as you perhaps think to dress a car up in sporty 1918 clothes.

We have a line of bodies which works wonders in the appearance of cars that were built before the present line of body styles appeared. These bodies are not of the 1917 type. They are in a class by themselves.

One of them will make your car the equal and more of any 1918 model on the road. If you will drive your car to our place of business we shall be pleased to give you an estimate on making your car into a snappy modern model.

Truck Attachment Letter

Do you know that it is possible for you to have a truck without paying what a truck costs?

It is possible for you also to have a truck which operates more economically than the average truck.

How is this done?

This is the way:

You utilize your Ford plus a Blank Truck attachment.

The motive power is the same little Ford engine that has been driving your car around town for some time. You know all about this engine—what it can do and what it costs to run it, and all about it. You are already familiar with the principal part of the outfit. We don't need to tell you anything about it.

The rest of the outfit consists of rear wheels, an axle, a drive shaft and body and there you have a 1-ton truck. Enclosed is a booklet showing what these rebuilt Fords are like and can do, but you can't really appreciate the situation until you see one.

We have one. Drop in and see it or ask us to drive it to your place. It's running around town every day and can stop to see you at any time.

Radiator Cover Letter

A piece of paper stuck on the front of your radiator is, in a way, a means of keeping your motor warm, but it isn't very sightly, is it? And neither is it very efficient. A real radiator cover is far better.

Our covers—and we have a full stock for all cars—are made to fit perfectly and are of heavy leather, wool lined. They have a simple strap and clasp arrangement so that you can roll up the front whenever the weather permits.

Prices are $2.50 for the radiator cover, or $4 for the complete radiator and hood cover.

You will like our service. No need to step out of your warm, comfortable car. No discomfort. No time lost. Merely shut off the gas, step on your brakes and "toot" as you reach our store. Our cover expert will run out, ask your desires, measure your needs, fetch the cover and adjust it securely.

Better stop and "toot" TO-DAY. To-morrow may be below zero.

Enclosed Car Letter

Cold days are here.

And because of these cold days a lot of people are going to lay up their cars and not drive. Their reason—and it is a good reason—is that it is so cold and windy that driving is uncomfortable.

But have you ever considered the comfort that lies in an enclosed car—a sedan?

In the Blank touring sedan you are protected from all the rigors of winter. You are not less comfortable than you are in your own easy chair at home.

Your hands don't get cold, your feet are warm, you can loosen or remove your overcoat, you can sit in comfort.

And when summer comes the car becomes a touring car again.

In our showroom we have a new model of the Blank sedan. Our purpose in writing this letter is to invite you to come and see it. It is the latest thing in motordom.

Vulcanizing Letter

Sometimes the men who run garages and sell cars and the men who drive cars wonder what winter is for. We all would rather have it some other season. But there is no cloud without its silver lining, and the silver lining in the cloud of winter is this: It gives you time to have your car put in shape and gives us time to do this work carefully and at reasonable rates.

Our immediate concern is for your tires. We have just fitted up a tire department and are ready for business.

Your tires probably have many little cuts in them that will become blowouts later on if not fixed now. It will save you money to give them attention at this time when we both have time for the work.

Drive down any day and we shall be pleased to give you an estimate on the treatment your tires should have.

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Repairshop Shortcuts

From The Motor World Roadman

No. 1520—AUTOMATIC CUTOUT

Whenever an electric motor is operating on a line and the current suddenly ceases or the voltage drops so that the motor stops, sudden resumption of the power is liable to injure the motor, owing to the sudden application of the load. By the use of the device that automatically opens the motor switch when the voltage drops or the current ceases, damage to the motor is prevented. Such a device comprises a magnetic coil placed in series with a lamp across the power line and holding a sliding weight. This weight is so placed that when dropped because of insufficient magnet strength caused by voltage drop, it trips a trigger and permits the spring to pull the switch open. Such a device is easy to construct and may save considerable damage.—I. Rae Cowdin, Willard Service Station, Ft. Collins, Col.

No. 1521—PHONE CALL SYSTEM

This telephone call system is for places that use two telephone systems, and not only designates the person that is to answer the phone but also the phone that is to be answered. On a board mounted to a roof beam, so that it may be seen from anywhere in the shop, are a bell and two lights—one red and one white. All are on separate circuits, the bell being operated by a push-button and the lamps by common car lighting switches. When the telephone call comes to the office, where the switchboard is located, the bell is rung, the number designating the person called. Then the light for the telephone to be answered is snapped on and left on until the call is answered. As many sets of lamps and bells may be installed as there are departments.—Longest Brothers Co., Louisville, Ky.

No. 1522—SMALL SHOP MOTOR

An old electric motor taken from an electric car may be adapted to the requirements of a small shop at a cost much lower than the regular equipment. The only change necessary is to provide an armature that may be used for alternating current. A simple method of mounting this motor above a lathe is illustrated. A rigid framework is constructed around the lathe and the motor bolted to the top, this construction, of course, being used when the motor support and shaft hangers cannot be suspended from the ceiling.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit, Mich.

No. 1523—FENDER REPLACEMENT DRILL

When fastening new fenders to any car it is necessary to drill several holes. This in turn necessitates the removal of the wheel in order to render the parts accessible unless an extension drill is at hand that will reach the base of the wheel. This extension is made by welding the automobile twist drill on to the end of solid shaft.—L. C. Rostucher, Wetmore-Quinn Service Station, Detroit, Mich.

No. 1524—SHOP STETHOSCOPE

In many instances a stick placed in the teeth or a short length of drill rod may be used to magnify engine noises. However, as it is necessary to be constantly determining the location of noises, a special equipment is desirable. Such a special device consists of a hollow metal chamber mounted on a 2½-ft. length of quarter-inch drill rod. The feature comprises two old Ford spark oil vibrators mounted on a short arm in the interior of the metal chamber. The distance between the points may be adjusted by a small screw, and under the action of the vibration caused by the knock, strike rapidly together and intensify the sound carried to the ear. The point of greatest noise is the point nearest the knock.—John H. Klein, Stanton Garage, Denver, Col.

No. 1525—PETCOCK WRENCH

It is not an easy matter to remove petcocks without injury, particularly when these are hidden behind other parts of the engine. A special wrench for this purpose comprises a shank of ¾-in. water pipe having notches cut at the lower end for engaging the petcock and a cross handle at the upper end. Wooden file handles may be fitted to the crossbar, giving a convenient purchase, and socket wrenches may be made in a similar manner.—Packard Motor Car Co., Detroit, Mich.

No. 1526—VALVE PLUG WRENCH

This wrench is for Packard valve plugs and clutch shaft rear bearing jam nuts. It is 1¾-in. cold-rolled steel, three hardened-steel pins being fitted into one end and the opposite end ground down hexagon, measuring 1¼ in. across the flat surfaces. The over-all length of the wrench is 7 in. and the hole for the handle is ½ in. in diameter.—Packard Motor Car Co., Detroit, Mich.

No. 1527—GEARBOX HOIST

The removal and replacement of the gearbox in closed cars is extremely difficult, due to the fact that an overhead chain block cannot be used. In such cases the gearbox hoist illustrated is necessary. The standard is angle iron bolted together in the manner shown and carrying a small chain block, to which is attached the gearbox cradle. This cradle comprises a cross-member of 1-in. round stock carrying two steel loops made of spring metal strips measuring 1/32 x 2 in. A thumbscrew at one end permits these clips to be removed and inserted beneath the gearbox.—W. L. Toffar, Winton Co., Philadelphia.

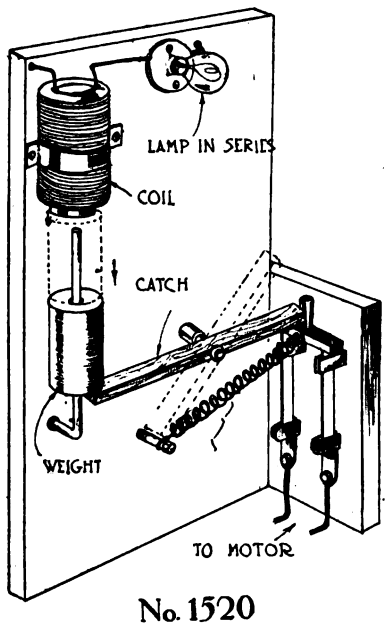
No. 1528—DODGE ENGINE SUPPORT

The front engine support of the Dodge is carried on a cross-member, and when any of the parts are removed it is necessary to support the engine in some manner. If blocked up from beneath, it is impossible to remove the car. Hence a triangular wooden support resting on each side of the frame at the rear of the radiator and holding the front end of the engine by means of a hook caught around by a fan bracket permits the front assembly of the engine to be removed without difficulty.—J. S. Perkins, Dodge Brothers Service Station, Pittsburgh, Pa.

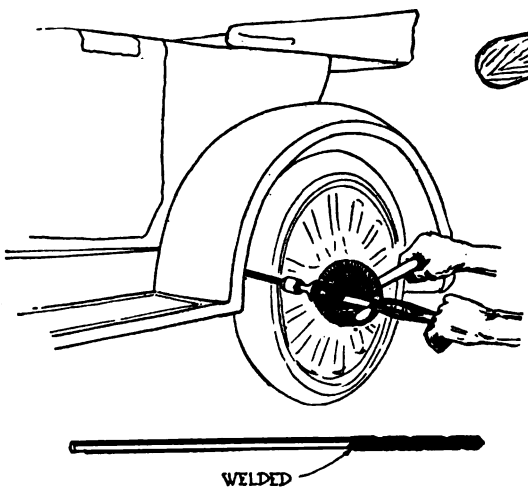
$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay $1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.

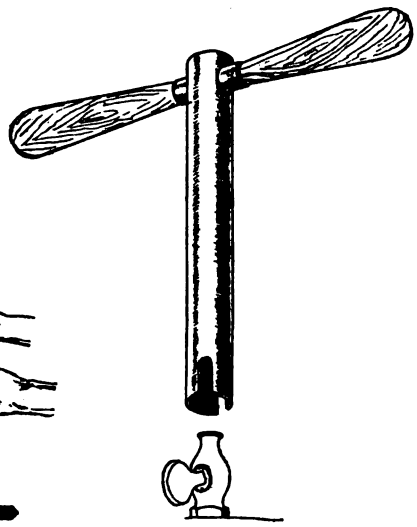
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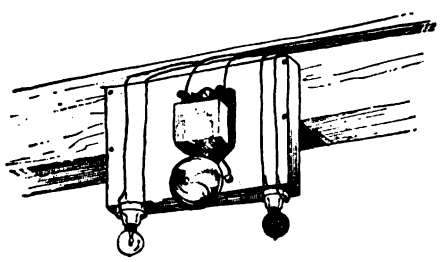
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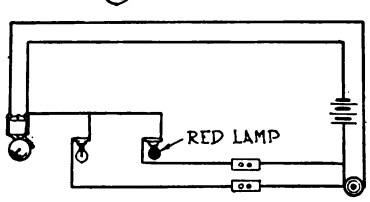


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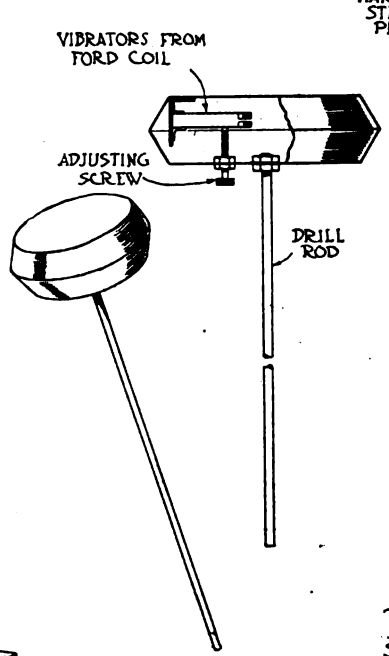


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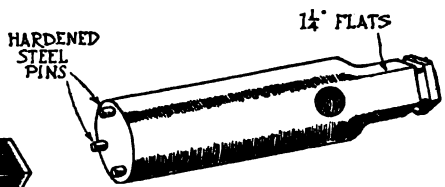




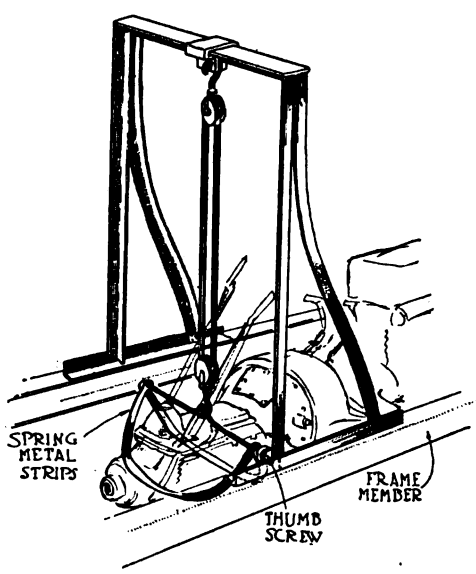
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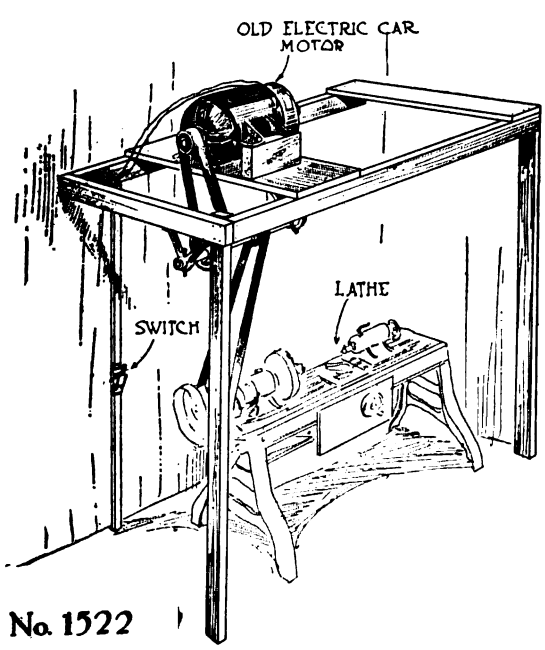
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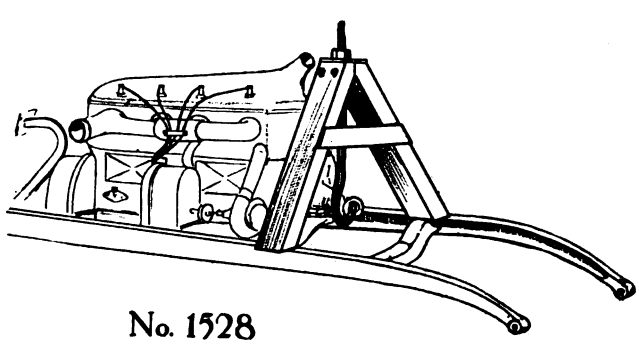
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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Is He Really "Sore"?

Editor Motor World: During the past year we have been using for advertising purposes a picture of a car being driven by one of our customers.

Recently we had a dispute with this customer over a repair bill, and he said that he would "make it hot for us" because we had been using his photograph without his permission.

As a matter of fact he has known all along that we have been using this picture and has seemed rather proud of it. Will you tell us what our rights are and whether he can do anything, as he gave us the picture himself?—T. J. L., Albany, N. Y.

Answer—In a number of States, such as New York, for example, one person has absolutely no right to use another person's photograph for advertising purposes unless the first person has given his consent for such use in writing. The New York statute relating to this matter is as follows:

"Right of Privacy—A person, firm or corporation that uses for advertising purposes, or for the purpose of trade, the name, portrait or picture of any living person without having first obtained the written consent of such person, or, if a minor, of his parent or guardian, is guilty of a misdemeanor.

"Any person whose name, portrait or picture is used within this State for advertising purposes, or for the purpose of trade, without the written consent first obtained as above provided, may maintain an equitable action in the Supreme Court of this State against the person, firm or corporation so using his name, portrait or picture, to prevent and restrain the use thereof; and may also sue and recover damages for any injuries sustained by reason of such use; and if the defendant shall have knowingly used such person's name, portrait or picture in such manner as is forbidden or declared to be unlawful by the last section, the jury, in its discretion, may award exemplary damages.

"But nothing contained in this act shall be so construed as to prevent any person, firm or corporation practising the profession of photography from exhibiting in or about his or its establishment specimens of the work of such establishment, unless the same is continued by such person, firm or corporation after written notice objecting thereto has been given by the person portrayed."

Under this statute you are undoubtedly subject to a suit for damages if your customer cares to start one, and I believe you are also technically guilty of a misdemeanor. Do not worry about the matter, however, because if he gave you the picture himself and knew that you were using it, no sane man would consider that he had been "damaged" to any extent.

In a case where a dealer wishes to use a photograph for advertising purposes, the only safe thing for him to do is to get the written consent of the photographed person to such use. Verbal permission is not enough because the statute says that the permission must be in writing, and it is unsafe as a general rule to go on the theory that because a person has given you a photograph and is a friend of yours he will not object to your scattering it broadcast in an effort to increase your business.

Owner Takes Risk

Editor Motor World: An automobile is owned by a resident of New Jersey and is kept in the State of New Jersey. The owner obtains a New York car license for the year 1917. Could he put this 1917 New York license on his car on the 1st of January, 1918, and use it in the State of New Jersey for fifteen days?

This question is brought about from the fact that New York State allows the month of January to procure new licenses, whereas in New Jersey the new license must be had on the first of the month.—HENRY E. HIRD, Passaic, N. J., Samuel Hird & Sons, Inc.

Answer—I would not advise using the New York license in New Jersey after the first of the year if the car owner is a resident of New Jersey.

The reciprocity clause in the New Jersey law was meant only for non-residents, of course, and although a resident of New Jersey might succeed in using his New York license until his new New Jersey license was received, I think he undoubtedly would be considered to be unlawfully displaying the New York license if that fact were brought to the attention of the New Jersey authorities.

Buyer Has Disappeared

Editor Motor World: In July we sold a used car to a man residing at Lakewood, N. Y., and filed a copy of the conditional contract with the town clerk of that place.

The note was not paid when due and we have since located the car at Meadville, Pa., sold to another man, and our customer is not to be found. We wish to ask what steps will be necessary in case the writer goes to Meadville to take the car. Will it be necessary to replevin?—F. D. VAN WAGENEN, Inc., Fulton, N. Y.

Answer—It would be very unusual for a person to surrender a car, voluntarily, in a case of this kind.

An action of replevin would be the proper action to bring for the recovery of the property sold under a conditional bill of sale. A demand should be made on the person having possession of the car, to turn it over to you. If he refuses, then your only recourse is suit.

No Change in Law

Editor Motor World: We understand that there is likely to be a change in the Michigan law regarding the use of glaring headlights. Can you let us know what the present law requires and if a change is contemplated which would necessitate the use of headlight lenses, or similar devices?—WALES ADVERTISING CO., 110 West 40th Street, New York.

Answer—The present provision requires simply that they be equipped with dimmers.

As the only states whose legislatures convene in 1918 are Georgia, Kentucky, Louisiana, Maryland, Massachusetts, New Jersey, New York, Rhode Island, Virginia and South Carolina, the state lighting laws in all other states will remain the same for this year at least.

That Income Tax

Editor Motor World: Who must make a report of earnings under the United States Income tax law?—J. J. D., Brooklyn, N. Y.

Answer—Every unmarried person of lawful age whose net income is $1,000 or over for the year and also all married persons whose net income is $2,000 or over.

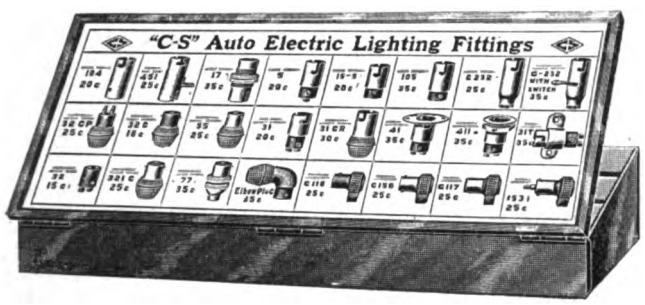
Returns must be filed whether the persons live here or abroad and whether they are citizens or not if they live here or carry on business or own property in the United States.

Chauffeur a Servant

Judge Camant, of the Supreme Court of Oregon, just recently decided that a chauffeur is a servant. He held that if persons select the driver of an automobile and have the power to direct his work or discharge him if they feel so inclined, the driver is their servant.

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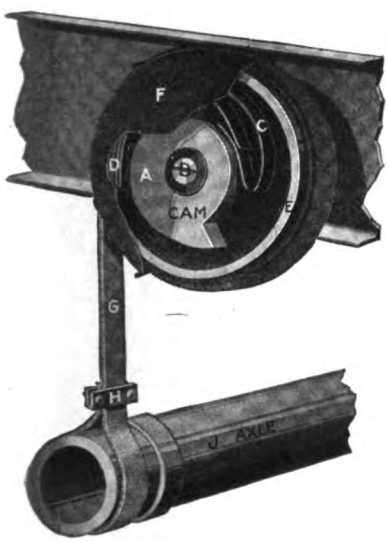
Accessories



SMALL FITTINGS DISPLAY CABINET

A representative assortment of small fittings contained in a neat cabinet for window, counter or showcase. The cabinet is designed to increase sales and prevent errors in recording. It is provided with a lock and is furnished in two sizes complete with 100 and 171 prices respectively. Prices $25 and $42.50.—J. H. Faw, Inc., 41 Warren St., New York.





VELVET RECOIL DEADENER

A shock absorber designed to check the up-throw of the spring and deaden the shock of the recoil. The cam A is fastened, stationary, on the pivot bolt B. The drum E revolves on pivot bolt B. The spring C is fastened to the inside of the drum E, and when the car goes upward the drum E revolves on pivot A and the spring C travels up on cam A and immediately begins the gradual stopping of the up-throw of the car. On the opposite side of the device, another spring winds the drum up and the spring C immediately slides down on the cam as the body of the car returns to normal position.—John W. Blackledge Mfg. Co., Chicago.



THE TEMPLE BELL

A warning signal for motor cars giving a musical note and showing a ruby light at the same time. The bell is of bronze mounted on a wrought steel frame. The standard electric socket uses a regular stock lamp. It is strongly made, all parts being riveted, and, it is said, cannot get out of adjustment. Any special emblem may be adjusted to the bell in place of the lamp if desired. Price $10.—Motor Sales & Mfg. Co., Baltimore.

GEMCO "ONE STROKE" JACK

The long handle gives sufficient leverage to lift any ordinary car with ease, the adjustment for a high or low car being made instantly with one motion of the adjusting rod. It is strong, compact and very simple in construction. Price $15.—Gemco Mfg. Co., Milwaukee.

ECON-O-KLEEN

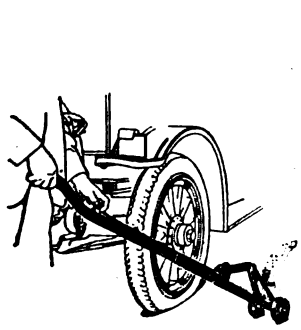
A fluid to promote more perfect combustion of gasoline. It is claimed that by its use the carbon waste is converted into power, the cylinders kept thoroughly clean and all fuel thus made directly available for power. Price $1 per can, sufficient for the treatment of 112 gal. of gasoline.—Econ-O-Kleen Fuel Co., Thief River Falls, Minn.

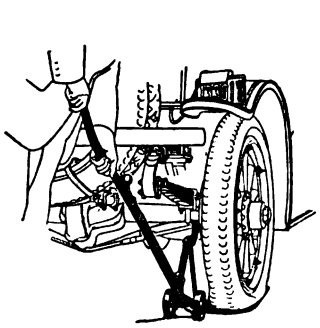
MARVEL WINDSHIELD CLEANER

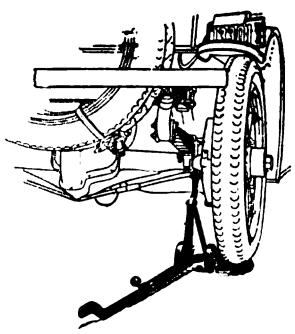
A simple, easily adjusted device which cleans the entire length of the shield with one movement of the hand, affording an unobstructed view to both driver and passenger. The fibre roller bearings are so placed as to prevent any tendency to stick or bind. Price $1.50.—Marvel Accessories Mfg. Co., Cleveland, O.

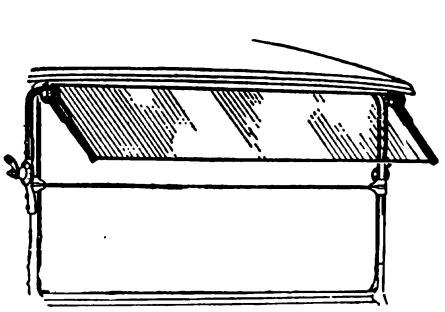
JEMCO WINDSHIELD VISOR

The bracket holding the visor readily attaches to the stanchion and not to the car or car top. A ratchet permits quick adjustment to any angle. The visor is 7 in. in width, affording an ample range of vision, and is made in two types, for the sedan and touring models. List prices $10 and $10.50, respectively.—Gemco Mfg. Co., Milwaukee.

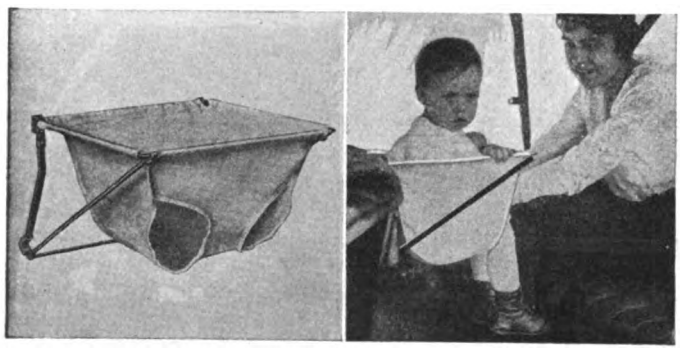






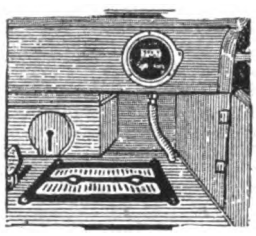


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PERFECTION ROCK-A-BYE SEAT

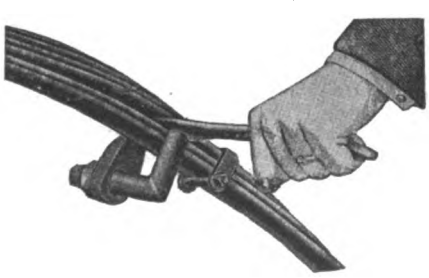
This motor seat for very small children is made of enameled steel and washable duck, and is attached to the back of the front seat of the car by attaching two small steel slots. Hooks in the Rock-a-Bye seat engage these slots and the seats can be lifted out when not in use. Price $2.50.—Perfection Mfg. Co., St. Louis.

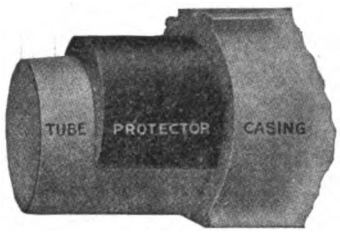


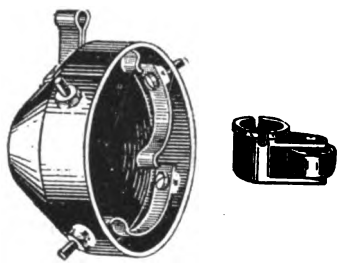


HOWDEN GAS REGISTER

A registering instrument to be attached to the instrument board, on which may be recorded the consumption of gasoline in totals up to the minute, as well as the amount of any charge account. A glance at the dial then shows the whole amount used and also the condition for the current month. It is protected by a pin and tumbler lock. It is built like a watch. The working parts are of steel, barreled, copper-sprayed and all nickel-plated. By means of the register and speedometer an accurate record of mile-per-gallon cost is instantly available. It is equally adapted to automobiles, motor boats, motorcycles, airplanes, trucks and tractors. Price $10.—The Auto Gas Register Co., 51 East 42d St., New York.

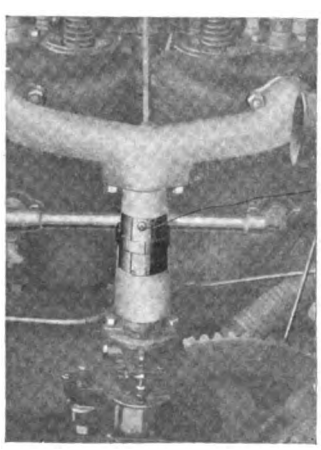






APCO HEATER FOR FORDS

This utilizes the heat blown by the fan over the exhaust manifold and is said to heat the car comfortably in the coldest weather. The installation is made by cutting a hole in the floorboard and fastening the heater in place with four screws. It may be closed or opened by a touch of the foot. Price $1.50. —Apco Mfg. Co., Providence, R. I.



STRUVE'S SPRING LEAF SPREADER

For the ready lubrication of springs. Is all steel, drop-forged and weighs 2½ lbs. The blade is 11 in. long and case hardened. When adjusted to the width of the spring a quarter turn of the lever separates the leaves. Price $2.—H. H. Struve Mfg. Co., Cincinnati.

COFFIELD TIRE PROTECTOR

A shield of firm, elastic rubber, without fabric, placed between the inner tube and the casing. It is claimed that it will not creep, and that it will turn any nail or similar object between itself and the casing, thus protecting the tube from injury. It is said also to protect stone bruises and rim cutting, due to under-inflation and to act as an insulator which keeps down the temperature of the tires in hot weather. It is made for motorcycle as well as automobile tires, the sizes ranging from 28 x 2½ to 38 x 5½ in. —Coffield Tire Protector Co., Dayton, O.

APCO TIMER FOR FORDS

This timer can be rebuilt when worn. It is said to overcome many troubles by the elimination of the fibre ring and the replacing of the small spring on the roller with four large springs on the case. The clock-spring steel contacts are held by special screws insulated with bone fibre and can be easily and cheaply replaced. The roller is hardened steel held in a die casting and runs on a hardened steel bushing with very little wear. Price $1.—Apco Mfg. Co., Providence, R. I.

ELECTRIC INTAKE HEATER

The Electric Intake Heater is a small electrically operated heater attached to the outside of the intake pipe leading from the carburetor, forming a hot spot that aids vaporization and facilitates starting. The coil of the heater is wired to the storage battery through a switch mounted on the instrument board, and the switch is closed for a few moments before cranking the engine. By the resulting heat the intake pipe is heated through, so that when raw unvaporized gas comes in contact with the heated area, vaporization results. Price $5. Electric Intake Heater Co., 115 East Cortland Street, Jackson.

GASO-TONIC

This is a gasoline and distillate tonic for use with gasoline, naphtha, benzine, kerosene, distillate, and crude oil in all kinds of internal combustion engines. It is said to reduce the cost of fuel, eliminate soot, increase power and prevent carbon deposits. It is a by-product of petroleum and is guaranteed to contain no injurious ingredients. One quart is sufficient to treat 200 gal. of fuel. Price $7 per gal.—Sales Service Co., 18 Water St., New York.

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The RETAIL NEWS

PACIFIC COAST

The Merrill Motor Co., Tacoma, Oakland distributer, has succeeded the Iles-Merrill Motor Co.

Keaton Tire & Rubber Co., Portland, has opened a branch in the Congress Hotel Building. J. S. Tormey is manager.

Barshar Motor Car Co., Seattle, has moved to new quarters at 1621 Twelfth Avenue.

Charles Kane, Tacoma, has opened an Oldsmobile repairshop at 1135 Tacoma Avenue.

N. L. Goodwin, Tacoma, has sold his interest in the McDonald-Goodwin Co., Mitchell distributer, to King E. McDonald.

Eastman Motor Car Co., Spokane, distributer of the Hupmobile and Cadillac, has moved to 1124 Sprague Avenue.

Gates Half Sole Tire Service Station has been opened at 250 Van Ness Avenue, San Francisco, under the management of F. B. Trask.

New Garages

G. H. Carl.....Carleton, Ore.
White Motor Car Co.....Seattle, Wash.
C. D. McPhail.....Portland, Ore.

SOUTH

Bradford Bros., Glasgow, Ky., have taken over the Glasgow Motor Car Co. and will conduct it under the style Glasgow Motors Co.

Wm. P. Atkinson Co., Petersburg, Va., is building a new showroom and accessories building.

Julius Morgan Motor Co., Savannah, has opened salesrooms at 122 Drayton Street, to handle Maxwell cars and trucks.

Darby's Garage, Monroe, Ga., has been improved and a vulcanizing plant and free battery service installed.

Deal Garage Co., Gainesville, Ga., has installed a vulcanizing plant and filling station.

New Garages

J. Morgan .....Pembroke, Ga.
Frank Pilcher.....Thomson, Ga.
C. R. & C. E. Wilson, Jr.....Russellville, Ala.

SOUTHWEST

O. B. Tindell, Hamilton, Mo., has opened a steam vulcanizing plant.

Paul T. Devin & Co., Joplin, have added a line of accessories.

Ross Mattheson, Nowata, Okla., will open a vulcanizing business in the Murphy Tire & Repair Shop.

Hughes Motor Co., Tulsa, will move to a new building at Second and Franklin Streets.

Grover Morrison, Dill, Okla., has bought the Dill City Garage.

E. S. Conder & Son, Girard, Kan., have purchased S. R. Snow's interest in the Central Garage and will conduct it under the style E. S. Conder & Son.

W. H. Shafer, Pratt, Kan., has sold his interest in the Swinson & Shafer Garage to his former partner, Fred Swinson.

E. G. McSwan, Pittsburg, Kan., has sold his garage and machine shop to Harlon C. Mahon and F. W. Coughenor.

J. C. Heston, Concordia, Kan., has bought the Johnson Garage.

L. R. Tripp Motor Co., Meriden, Kan., is moving into a new building.

Emil Larson, Harveyville, Kan., has bought the Grandstaff & Shrist Garage, which will be styled Chevrolet Garage.

Theo. Muckenthaler, Paxico, Kan., has sold his interest in the garage at Wamego.

Parsons Vulcanizing Works, Parsons, Kan., has moved to 210 North Central.

M. D. Ricketts, Sedan, Kan., has bought the Central Garage.

Collins & Bauer building, Wellsville, Kan., is being extended to provide room for storage and a repair department.

Tom Decker, Denison, Kan., has bought the Denison Garage and will take possession March 1.

Fred Horn, Simpson, Kan., has leased the Robertson Garage.

R. D. Joy, Coffeyville, Kan., has purchased a garage at Caney.

A. P. Turner and J. C. Bartlett, Arkansas City, have bought the Cowley County Motor Co.

Luther-McCoy Motor Co., Dodge City, Kan., has bought the vulcanizing business and equipment of W. R. Archer's battery station.

Jesse M. Shirley, Braymer, Mo., has sold his garage to M. Dunwoodie.

The Chevrolet Salesroom and Offices, Kansas City, are being remodeled.

Holliday Motor Co., St. Joseph, has been sold to Marie Mather and will be conducted by her under the style Mather Motor Car Co. The business will continue along the same lines as the Holliday Co.

Dick Pilcher, Nara Visa, N. M., has sold his interest in the Nara Visa Auto Co. to Guy Bell.

T. M. Davenport, Sulphur, Okla., has sold the Highway Garage Co.

O. C. Banks, Norman, Okla., has sold his garage to Henry Starzer and Andrew Jansing.

Ira F. Rolls and W. A. Parsons, Okemah, Okla., have bought the City Garage, Weleetka, from Arl Stringfield. It will be styled Tri-State Garage.

J. S. Mize, Waurika, Okla., is remodeling the Petty Building for salesrooms.

The 555 Tire & Vulcanizing Co., Little Rock, has installed new machinery.

Lone Star Motor Co., El Paso, is erecting a new building with a floor space of 75,000 sq. ft.

J. N. Converse, San Antonio, has bought the business of the Wheeler Auto Supply Co. and it will be styled Converse Auto Supply Co. Salesrooms on the San Antonio Motor Row have been opened.

Johnston Motor Sales Co., San Antonio, have moved into new quarters on Avenue C.

The Atlas Tire Co., San Antonio, has moved into quarters at 232 Avenue C which are four times as large as its former location.

Harry Newman, Inc., St. Louis, has opened a used car salesroom at 814 Leffingwell Avenue.

The Camelford-Truck Co., St. Louis, has opened a salesroom for the Camelford extension unit for Ford cars at 3912 Washington Avenue.

The Williamson Motor Car Co., San Antonio, has moved to larger quarters.

Quantrell Cone, Llano, Tex., has purchased T. A. Bartlett's interest in the Llano Garage.

J. R. Hill, Athens, Tex., manager for Robbins Bros., has purchased their garage business.

Asbury & Frank, Alex, Okla., has bought the White Garage.

W. T. Ames, Haskell, Okla., has bought the garage of A. C. Logand.

Rock Island Garage, Courtland, Kan., has been reopened by W. A. Bland and Wm. Campbell.

Brown Motor Co., Fort Scott, Kan., has opened a service station.

C. F. McMannis, Byers, Kan., has installed a vulcanizing plant in his garage.

Goodwin Motor Co., Wichita, has moved to larger quarters at 333 South Lawrence Street.

Mikeham Motor Co., Eureka, Kan., has remodeled its shops.

O. C. Meckenstock, Herington, Kan., has bought the repairshop of the Kramer Garage.

J. W. Gay, Wichita, Kan., has bought the M. D. Johnson Garage.

Francis Reber, Marysville, Kan., of Burket & Reber, has bought his partner's interest.

B. O. Neptune, Belleville, Kan., has bought the Hubbell Garage.

N. W. Brown, Cherryvale, Kan., has bought the Ideal Auto Garage from Don Osborn.

J. T. Godell has bought the Belpre Garage, Belpre, Kan., from Charles Barrows.

M. E. Neal has bought the garage of Charles Robinson, Bucklin, Kan.

J. T. Smith & Son, Erie, Kan., have opened the Erie Vulcanizing Shop in the Sentinel building.

Hobbie & Edgington, Sedgwick, Kan., have bought the Sedgwick Garage from Morrison and Cover Horn.

Chas. E. Stewart, Dodge City, Kan., has sold his interest in the Cannon Ball Trail Garage to Louis Wess.

Claude Summer, Lexington, Mo., has bought the garage and repairshop of Wm. Palmer, Jr.

Mark E. Feltis, Braymer, Mo., has bought the garage of J. M. Shirley.

John A. Jones, Lamar, Mo., has bought the garage of Stonum & Elliott.

William Palmer, Jr., Lexington, Mo., has sold his garage and repair business to Claude Sunner.

W. A. Schneider, Sikeston, Mo., has opened a vulcanizing shop.

New Garages

V. V. Grider.....Rolla, Kan.
Frank Hays.....Hunter, Kan.
Paul Stone.....Severy, Kan.
Hill & Schafer.....McPherson, Kan.
W. A. Garlits.....Wichita, Kan.
Ray Griffin.....Burlington, Kan.
City Garage Co.....Agra, Kan.
Pinneck & Williams.....Paola, Kan.
Kansas Truck & Tractor Co..Wichita, Kan.
Van Hercke Motor Co.....Pleasanton, Kan.
Skaer Motor Co.....Augusta, Kan.
Jack Wolfley.....Atchison, Kan.
H. C. Long.....Linwood, Kan.
Shaw-Snyder Motor Co.....Wichita, Kan.
Jenkins Bros.....Byers, Kan.
J. W. Hanly Motor Co.....Douglas, Kan.
McKebzie & Jacobs.....Phillipsburg, Kan.
Gilliland & Thomas.....Ottawa, Kan.
R. G. Beezley.....Steelville, Mo.
D. L. Shaw.....Caruthersville, Mo.
Grimes Garage & Machine Shop Co., Hillsboro, Tex.
Electric Service Co.....San Angelo, Tex.
Gibb & Co.....Little Rock, Ark.
C. W. Pingry.....Prague, Okla.
J. S. Swafford.....Tulsa, Okla.
O. N. Buchanan.....Stroud, Okla.
J. S. Mize.....Waurika, Okla.
W. E. Garlett.....Tulsa, Okla.
Matthews & McBryde.....Berlin, Okla.

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G. L. Hudkins.....Salina, Kan.
Central Garage.....Emporia
Shelby Cuddy.....Parsons, Kan.
Walter G. Maxey.....Ozark, Ark.
The Barnett-Cowan Motor Co..Durant, Okla.
Bailes & Lytle .....Anadarko, Okla.
Ed. Walter & Joel Nelson..Savonsburg, Kan.
Jacob Kemler.....Basehor, Kan.
Walter & Nelson.....Savonburg, Kan.
Shelby Cuddy.....Parsons, Kan.
Bland & Campbell.....Courtland, Kan.
J. H. Krug.....Herkimer, Kan.
Tubbs & Thurman.....Great Bend
R. L. Phillips.....Joplin, Mo.
Fred Norton.....Carthage, Mo.
Modern Auto Co..2210 Pestalozzi St., St. Louis

MIDDLEWEST

Moller Motor Sales Co., Quincy, is now styled Morris Adler-Moller Co., and has opened new quarters at 609 Vermont Street. The firm will distribute the Maxwell car and truck.

James T. McKinstry, Delavan, Ill., has sold his garage to William Connell who plans to enlarge the plant.

Acme Motor Truck Co., Cadillac, Mich., has opened a distributing station at Freeport, Ill., with A. L. Slusser and M. M. Ulfers in charge. A fireproof warehouse will be erected in the spring.

The E. V. Kirby Auto Co., Champaign, Ill., has opened a sales agency in the Lincoln building with L. H. Hart as manager. The concern will distribute the Ford.

The Muskegon Overland Co., Toledo, has purchased the Koebel & Bennet Auto Co., 54 West Clay Avenue, and will handle the Overland and Willys-Knight and Federal trucks.

E. A. Bowman Co., 844 Woodward Ave., Detroit, accessories jobber, has leased the adjoining building for additional stockrooms.

Ross Motor Car Co., Superior, has moved to larger quarters at the Terminal Buildings, Winter Street and Ogden Avenue.

R. D. Clark Motor Co., Oconto, Wis., has sold its business to the Oconto Falls Motor Car Co., Oconto Falls, and the two companies will be consolidated in the latter city.

Fred Wright has leased the building formerly occupied by the R. D. Clark Motor Co., Oconto, Wis.

Lastro Auto Sales Co., Athens, Ohio, is moving to larger quarters in Nelsonville, Ohio.

Manistee Tire & Repair Co., Manistee, Mich., has been purchased by Otto Schimpke and O. J. Doelle, and will be styled Michigan Tire & Repair Co.

Frank Kemnitzer, Montfort, Wis., has sold his garage building to Johnsrud & Chandler, and has moved his stock to Livingston, Wis. In partnership with Wesley Holmes, he has taken over the Fred Brant Motor Co. here.

Saginaw Cadillac Co., Saginaw, has moved into a new showroom and service station at 208 North Washington. J. J. Tompkins is manager.

The Wilson Garage Co., Milwaukee, has taken over the Kopmeier garage building, 375-389 Summit Avenue, one of the largest in the Middle West.

Jensen & Anderson, Grand Rapids, Wis., Ford dealers, have leased a factory building and will convert it into an auxiliary warehouse for new and used cars.

Franz Bros., Tomah, Wis., have installed a storage battery service station and will specialize in Prest-O-Lite service, sales and repairs.

Deicher & Arndt, Plymouth, Wis., have leased a building near their garage and repairshop and will fit it up for the display, sale and service of tractors.

Marshall Auto Co., Flint, has opened with the Nash agency.

Natwick Electric Co., Grand Rapids, Wis., has established an electrical service and battery shop and will operate it as "The Electric Garage." Frank J. Natwick is general manager.

Wisconsin Motor & Machinery Co., Marshfield, Wis., dealer for the Nash, Franklin, Oakland, Hudson and Doble, has leased the Lahr Building and will remodel it for a salesroom.

Alfred Ladewig, Grandville, Mich., has purchased the stock of the Hammond Auto Co. and will conduct a general garage and salesroom.

Michigan Tire & Accessories Co., Grand Rapids, will move into the Nichols building, Monroe avenue, February 1.

Inkster Garage, Inkster, Mich., has been sold to H. McLean.

New Garages

Roemer Bros.....Hartford, Wis.
Wausau Motor Car Co.....Wausau, Wis.
Schumann Motor Co.....Cedarburg, Wis.
J. H. Spengler.....Marion, Wis.
Lake Mills Auto Co.....Lake Mills, Wis.
Maur, W. Fox & Co..Grand Boul'd, Detroit
Black Brothers.....Holly, Mich.
A. F. Nessner.....Benton Harbor, Mich.
G. W. Ehrhart.....Decatur, Ill.
Hermany Moody.....Peoria, Ill.
Frank Pumphrey.....Decatur, Ill.
E. B. Kirby Auto Co.....Champaign, Ill.
G. W. Ehrhart.....Decatur, Ill.

NORTHWEST

H. A. House, Olivia, Minn., has bought the A. L. Jansen garage.

William Sagissor, Kellogg, Minn., has sold his interest in the Kellogg garage to his partner, Charles Phillips

William Sagissor, Plainview, Minn., has bought an interest in the Edwards garage.

Leonard Walters, Sturgis, S. D., has bought the interest of William Hall in Stolz & Hall.

F. M. Fraley, Volga, S. D., has bought the George Brown garage and will take possession March 1.

Bret Read, Conner, Mont., has leased the Conner garage.

Lee Howell, Hettinger, N. D., has bought the interest of his partner, Peter Christianson, in the Hettinger Auto Co.

Ray Wilson, Munich, N. D., has sold the Munich garage to W. A. Farrell, Langdon, N. D.

H. W. Witzel, Artesian, S. D., has bought the stock of the Jones Garage and will continue the business.

Lundquist & Larson, Graceville, Minn., have bought the Graceville garage from P. Cota.

Ed. Gray, Dillon, Mont., has bought the interest of Sam Ditty in the Ditty & Sheppard Auto Co.

Jay & Alfred, Cole, S. D., have taken over the mechanical department of the Cole garage.

F. S. White, Shelby, Mont., has bought an interest in the Ford agency and supply station.

Dwight Young, Fairbury, Neb., has sold his garage to Sol. Cressman.

C. J. Channey, Waterloo, has bought an interest in the Wesp Motor Co., New Hampton, Iowa.

H. Currier, Eddyville, Iowa, has sold his garage to Henry Sisco.

H. E. Steinke, Keystone, Iowa, has bought the interest of his partner, A. Werning, in the Keystone Garage.

A. R. Garner, Des Moines, has bought the P. A. Mathre garage at Ames, Iowa.

C. M. Moats, Webster City, Iowa, has bought a garage at Duncombe, Iowa.

O. H. Larson, Butte, Neb., has bought the interest of Anton Kramer in the K. V. Garage. The firm will be styled Voss & Larson.

Larrson-Krell Ignition Co., Billings, Mont., will conduct a retail and wholesale accessory and vehicle hardware business.

George A. Hunt and Clarence Hunt have bought the Billings garage at Billings, Mont.

Theodore Hermanson and Leo Seppala, Buffalo, S. D., have leased the Buffalo garage from William Johnson.

Deulen & Martin Co. and **Frost Brothers Co.**, both of Bridgeport, Neb., have exchanged locations.

Ernest Adamson, Lynch, Neb., has bought the interest of his partner, Frank Zercher, in the Lynch garage.

Swede Rees, Pilger, Neb., has bought the garage of C. L. Miller.

Charles De Griselles, Sioux Rapids, Ia., has bought the garage of August Meyers.

R. D. Maulis, Adams, Neb., has bought the Benson garage at Sterling, Neb.

John Chadderdon has bought the garage of Lee Yutsy, Cambridge, Neb.

Floyd Holcomb, Broken Bow, Neb., has bought the garage of James Martin & Son.

Edward Whealon, Schaller, Ia., has bought the interest of I. L. Wells in the Arthur garage.

Samuel Hulsebus has bought the garage of George Rosman at Harlon, Ia.

Grampp Motor Sales Co., Davenport, has opened a new salesroom and service station, and has taken over the Holmes Motor Co. The firm distributes the Paige car and truck.

Willard Rumberg and Forest Honey, Sutton, Neb., have bought the garage of John Hokom at Ong, Neb.

New Garages

E. J. Schrack.....Alma, Neb.
Nickey Motor Co.....Kearney, Neb.
Dan Schreiber .....Plymouth, Neb.
Yohe & Menner.....Nebraska City
W. D. Mathews.....Madison, Neb.
Johnson & Doherty.....Winner, S. D.
J. F. Wheeler.....Lewis, Iowa
Snyder & Kayser Co.....Webster City, Iowa
Charles W. Walker Co.....Omaha, Neb.
R. B. Norden .....Nevada, Iowa
Curtis Kluger.....Swea City, Iowa
Jos. Vonderhaar.....West Point, Iowa
Crabb Gas Engine Co.....West Union, Iowa
Louck & Boehme.....Washington, Iowa
John Deatherage.....Oakland, Iowa

EAST

Frank O'Toole, Lynn, Mass., has opened a Gould storage battery station.

CANADA

The Ford Motor Car Co. of Canada, Ltd., will move to 1050 Homer Street, Vancouver.

The International Motors of British Columbia, Vancouver, has taken over the Central Garage and will handle the Briscoe, Hupmobile and Haynes.

Lethbridge Motors, Ltd., Lethbridge, Alta., has taken over the McLaughlin garage, formerly conducted by E. A. Adams. A. R. Barnsley will be manager

H. B. Neilson, Vancouver, has bought the Auto Supply Co., Howe Street, from F. A. Cleland.

New Garages

Victoria Garage & Motor Co., Ltd.,
(Addition) .....Moncton, N. B.
W. J. Sheridan.....Vancouver

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Liberty Engine Plans Laid Bare at S. A. E. Meeting

WHAT is the United States Government doing with regard to the Liberty Airplane Engine? What are the production plans? How good is the engine? Why did not the United States adapt the best foreign design? These are some of the things that were explained at this meeting. The story below carries a message for every dealer.

NEW YORK, Jan. 11—Yesterday's winter session of the Society of Automotive Engineers was highly important from a national standpoint. For the first time complete details of the Liberty engine and the government airplane program were laid bare. Important aeronautic, motorcycle and tractor standards were adopted and also a few additional points on automobile accessory and fitting standards, notably in connection with headlight illumination and bumper location, were cleared up.

The symposium on the Liberty engine, taken part in by Col. V. E. Clark, Major J. G. Vincent and H. M. Crane of the Wright-Martin Co., was the most important part of the entire meeting.

Col. V. E. Clark spoke of the requirements of the different types of planes and showed the important work that these planes can do toward winning the war. He told of the almost immeasurable effects upon the morale and physical resources of the enemy by night bombing operations, the use of large fleets of night bombing machines which he said would be of fundamental importance in winning the war. Col. Clark also went into the uses of the single-seated and double-seated combat and observation machines, the heavy types of bombing machines, and also told of the requirements of pilots in operating the different types.

Major J. G. Vincent spoke of the step-by-step processes by which the Liberty aircraft engine was designed. He told why it was that the entire program was put in the hands of a few men instead of being distributed among a number of factories, explaining that if the latter had been done it would have been impossible to get down to a production basis, in spite of the fact that several good engines would no doubt have been designed. Major Vincent said that he is quite certain that no better engine could be produced, as this was designed to be from six to eight months in advance of the best European type now in use. Furthermore, it is a production engine which can be turned over to numerous factories throughout the country for manufacture.

H. M. Crane told of the manufacturing fundamentals behind the Liberty engine. Epitomizing his talk, he told how the engine was adapted to the industry instead of the industry being adapted to the engine; he also showed how the foreign engines, taken as they are, do not readily permit of American production methods. The successful production engine must be designed in sympathy with the methods of American factories.

How the Production of Liberty Planes Is Progressing

By Howard Coffin

Chairman Aircraft Production Board

"WHY did not the United States take the best foreign airplane engine and duplicate it for our planes?" everyone has been asking. "Because," said Howard Coffin, chairman of the Aircraft Production Board, and principal speaker at the banquet of the S. A. E. at the Biltmore, "European engineers were far from being agreed on what was the best European engine." He continued:

In fact, they were not fully satisfied with any engine they had. Moreover, the engines of European design were not adapted to American production methods.

The first model of Liberty engine built was an eight-cylinder model, but before this was put in production the demand for increased power became so insistent that a twelve-cylinder type was decided upon.

The aircraft plans agreed on after full conference with the Allied powers provided for the purchase of airplanes on the other side to take care of American needs until July 1 of this year.

Planes Ordered Abroad

One of the first things done by the Government after the President, on July 24 last, approved the Aircraft Act with its $640,000,000 appropriation, was to authorize General Pershing to place orders for several thousand fighting machines in allied countries. Many millions of dollars' worth of materials and machine tools have been shipped from the United States to aid foreign production.

Aircraft materials have been standardized with the Allies in detail and type. A complete co-ordination of manufacturing facilities and policies has been agreed upon between the Allied Powers.

Thousands of American mechanics are being put into actual service with the Allied forces. Trained men will be released as needed in the United States service and their places kept filled with fresh material. The personnel for such increase is already available.

In accordance with the plans originally agreed upon with the Allied Governments, it was deemed advisable to provide for advanced training overseas adjacent to the actual theater of military operations, but so energetic has been the work of the personnel division of the Signal Corps that the training facilities were soon overcrowded, with the resultant request that early arrangements for advanced training be made in America.

To meet this change in program delivery of advanced training planes will begin this month, and within 90 days will have met requirements. The engines of foreign design for this advanced training schedule are already in quantity production in this country.

We have seen and heard much of the proposal of 100,000 airplanes to be pro-

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vided by the United States within the next year. In a country where one great industry produces 1,500,000 motor cars per year the fabrication of 100,000 planes might seem easy, but actual figures based upon three years of practical experience in the war show that there are now between forty and fifty men of the auxiliary service required for each active machine at the front. If this same ratio should be adhered to in our service it would mean that 4,000,000 men would be required in our aeronautical department on foreign soil between our ports of debarkation and the fighting front.

Even though this number could be reduced by 50 per cent by increased efficiency and standardization, the number required is still staggering. Consider also the overseas transportation problem as related to material only and without reference to personnel and its maintenance. Again, the problem of proper housing behind the battle lines in Europe of such great numbers of planes as are carelessly discussed may well be left to sober thought and planning.

Every decision of the Aircraft Board has been based upon the military policies of the front. Daily cable communication with Allied countries is maintained.

New sources of supply, flying fields, the experimental laboratory and other activities, under the direction of the board, have been purposely located west of the Allegheny Mountains, in accordance with the stated policy of the military departments to remove sources of war supply 200 miles from the sea coast, and to avoid the labor congestion which exists in all Eastern industrial centers.

Established plants of the motor car industry are being largely utilized in aircraft motor production, but not in airplane construction. In general, the statement may be made that not a single automobile factory is in any way involved in the plane building industry. The reasons for utilizing the engine building talent of the third largest of the world's industries permit no argument.

Liberty Engine Production Problems

By H. M. Crane

Chief Engineer Wright-Martin Aircraft Corp.

IN laying out a production schedule the whole industry had to be taken as it was and not in some different way. There must be many here who have done development work, and as you know, the most successful engine is the one designed to meet the factory idea and temperament. If you do not do that production is delayed.

Production with a foreign engine would never have been half what we can expect from an engine designed in this country with the knowledge of all the American factory practice. When I heard in the newspapers in the early part of the summer that an engine had been designed in 2 weeks I was very much surprised. When I had the privilege of coming closer to what had been done I found that this was only the final printing. What had occurred was a year or 2 years of development, always thinking in terms of American methods.

Can't Build Foreign Types

I have been working on a foreign engine. It was designed by the best production engineer on the other side. It is for that reason it has been so successful on the other side, and yet it contained difficulties that had to be met.

Speaking of the distance we are from the other side—we are distant in our way of thinking and we are distant in miles.

Therefore, it is difficult to copy foreign practice. As an illustration of the difficulty of this, all we need to do is to look at the Mercedes. That has been copied by many, yet no one who has copied it has reached its efficiency or usefulness. The makers who have started to copy it and who reached a fine product have altered their processes and design very materially. That would happen to us if we had started on a foreign design. The best foreign designs are not inventions. An aviation motor must be of the simplest form and the Liberty is the embodiment of the simple idea of compactness, which makes for light weight and reliability.

The cruising radius of the plane is a matter of load, speed and plane design. It is easily up to 600 miles.

The twelve will be the only Liberty engine in production. There is no idea of building anything else at the present time.

Best Form of Ignition

The increased speed and number of cylinders make it very questionable if the magneto is the best form of ignition. Two separate sparks per cylinder must be furnished, and they must be independent in every respect so that should one go out of order the other will fire regularly. While the magneto is now questioned, there is every disposition on the part of the engineers to listen to suggestions on both types, and the ignition, as now provided, is at least as good as could be designed. The committee is going right ahead with what they have in ignition at the present time. An interesting point is that nobody has as yet offered a system which is as light as the one now in use.

Regarding weight per horsepower, the engine originally weighed 786 lbs. and delivers 400 hp. at 1625 r.p.m. Due to the strengthening of certain parts, the weight has been increased and is now 801 lbs., giving 2 lbs. to the horsepower —the weight per horsepower on the best French machines, such as the Hispano geared type, as the engine weighs 520 lbs. and produces 220 hp. There are two compressions on the present Liberty engine, a compression ratio of 5 to 1, or 20 per cent, being used on the navy machines, and a ratio of 5.4 to 1, or 18 per cent, on the army machines. This is because the army machines do their flying at above 10,000 feet elevation and get up to this height just as soon as possible. This compression is based on the best practice abroad, although experiments are being made on higher compressions, and it is known that a 6 to 1 ratio can be provided without trouble.

Lubrication Problems Solved

For lubrication we are trying to get castor oil, but a good grade of mineral oil is quite satisfactory. The supply of castor oil has lately been increased, but there is no difficulty on the score of lubrication.

The average life of a combat machine is two months, or about 100 hours of flying and fighting. Observation machines have a slightly longer life, the average being about three months. The bombing machines have an indefinite life, generally ending their careers through wear rather than through actual damage.

Regarding spark plug trouble, it has been possible with the special design of cylinders to bring the water close to the plugs. The Liberty engine is not a hard engine, relatively speaking, as regards spark plugs, particularly as no extreme compressions are used. Carburetion is not exactly right for high altitudes. No starter is necessary on the machines now under construction, as it is impossible to stop the Liberty engine, once the machine is in the air, as it cannot be driven slowly enough to stop the engine from turning over.

Very Little Valve Trouble

Regarding the possibility of the engine with four valves per cylinder, Major Vincent stated that there is no necessity for this, as four valves are harder to cool and are apt to cool unequally. Until the lift equals one-quarter of the diameter of the valve, the full value of the valve is not obtained. There is a possibility of there being, at some future time, an engine with two inlet valves. There is no radical feature in the valve timing, as the exhaust opens 52 degrees before bottom center and the intake closes 45 degrees as to bottom center.

The ignition apparatus weighs 29 lbs., including the battery. The fuel feed is by pressure system, with a pump on the engine and a blow-off valve in the tank. The valve mechanism is operated by a rocker through a bearing, and any oil getting out must escape through this bearing, thus lubricating it. The piston clearance was at first set at .016 in., but after increasing the diameter of the valve 1/16 in., the clearance was raised to .020. The piston is straight up to the bottom of the top ring.

The engine is a dry crankcase type and the cylinder dimensions are 5 x 7.

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The period of the engine is at 1200 r.p.m., and in making tests propellers are used while the power curves are taken on an electric dynamometer. Domestic materials only are employed in the manufacture. The valves are 2½ in. in the clear with a lift of ⅜ in. for the exhaust and 7/16 for the intake.

How the Liberty Engine Was Conceived

By Major J. G. Vincent

Co-designer of the Liberty Engine

GO back to April or May, when the Government had the job to decide about the airplane program. Considerable time was put in going over the situation, and what was then called the Aircraft Production Board was in charge of the job.

The French and English agreed that there was nothing here that would be of value at the front. We did not have the engine they wanted at that time. It was finally decided we should get together all the best things embodied in those of the Allies and combine them. We wanted to combine all the benefits of the experimental work of the Allies, and at the same time produce manufacturing results that had been produced by the Germans, that is, cut down to the fewest possible parts. The scheme as originally laid out consisted in making a number of engines of interchanging parts, cylinders from four to twelve and possibly more, if that seemed desirable, later.

However, it was decided to first build an eight-cylinder of approximately 250 hp., but before that was completed we were asked to use the twelve-cylinder of over 300 hp. because the cry for more power was being heard. Of course, we had the men on the other side sending information. We took all this information and combined it with our own experience to produce a standardized aircraft engine.

Quantity Production Essential

We decided it was absolutely necessary to design this engine and have the Government follow it, though so that manufacturers could produce in quantities. The automobile engineers co-operated on this job. It was only on the 4th of June that Major Hall and I were given the order to produce ten sample engines. We went back to Detroit and got out rough detail drawings.

The first engine was produced in 21 days because we got everybody's co-operation. That shows what can be done through co-operation, and we can only do things with co-operation. We do know how to produce in large quantities, and produce them good if we have a definite program. The first, built in 21 days, was an eight-cylinder.

You can realize the importance of having a standardized engine. If you have two planes identical save for the engine, it is almost impossible to take out one and put in another without redesigning the plane. We took the cylinders and valve operating mechanism and the crankcase and crankshaft construction, connecting rod, the generator, intake head—so long as it was good it made no difference.

When we finished the twelve-cylinder engine we put it to a test and made not a single adjustment through a 50-hr. run. We did not put that through the 50-hr. at maximum horsepower on the ground, because the engine was designed not to be run open on the ground. It developed a horsepower to 2 lbs. of engine weight. Since that time we have found out that it will run for an indefinite period wide open on the ground. It develops 400 hp.

The Aircraft Production Board was not asleep. In the meantime very large facilities were being provided for manufacturing. The equipment for manufacturing steel cylinders is a very large proposition. Everything was taken up and carefully studied. Each factory will produce the same thing and have interchangeable parts as far as possible.

There is another thing that is going to be a great benefit. We have been co-operating with the automobile engineers for years. If we had brought in different aircraft engines from abroad and distributed them around the plants it would have resulted in great jealousy, each keeping his own knowledge to himself. The most important of all is with the standardized engine you get the benefit of everybody's co-operation. We have nothing but twelves in production because it is the one with the most power. With it we get over 400 hp., and that is all we know how to use efficiently to-day.

Different Types of Military Airplanes

By Col. V. E. Clark

In Charge of Military Airplane Development

IN this war the Allies have a greater number of types than the enemy. One reason for this is that the Allies have listened more to the demands of the pilots using the machines. The Americans are trying to select those types that render themselves readily to standardized production.

The various military types can be divided into airplanes of observation, airplanes of combat and airplanes of destruction. None are new—each type has its different functions.

Airplanes of observation act in connection with field artillery, act with the infantry and keep in touch with lines of communication and keep commanders in touch with movements; take photographs; make maps beyond the lines and dive down and inflict damage on trenches by machine guns. It is hard to draw a line between the types. The airplanes of observation may carry two or three men.

Mammoth French Machines

The latest development in France is the army observation machine for three men and the engine is 500 hp. Airplanes of combat and pursuit are usually single or two-seater. Each, of course, has its advantages. The development of more powerful engines will mitigate against the single-seater, and eventually it may entirely be replaced by the two-seater.

The airplanes which do the real damage are the third type, those of destruction. Of course a very brilliant fellow can go up and bring down ten of the enemy, but bombing airplanes will inflict the real damage. The bombers are divided into day and night machines. They are entirely different.

The day bomber carries two men. They bomb headquarters, ammunition plants, factories, trenches and warehouses. They do photographing also. They must be able to protect themselves from all possible aircraft.

It is not economical to send trained pilots a great distance beyond the lines unless the machine carries 600 to 800 lbs. of bombing material. It should carry two or three machine guns. Day bombing will be done in the future in formation with as many machines as can be flown without any particular risk of collision. These will be in multiples of five. The German Gotha has two 260-hp. Mercedes engines. These types have bombed London during the day.

Night Bombing Planes

The night bombing will inflict real damage. The night bomber is different from the day bomber. It is not necessary to be fast. The primary requirement is good bombing capacity. Two Liberty engines carrying three or four men should be able to carry roughly at least one ton of bombs. Two pilots are carried, the chief pilot and the bomber. Machines that have a ceiling of 10,000 ft. running 85 m.p.h. are ample. Greater speed means more power or less carrying capacity. In the case of a machine with two Liberty engines, for every 16 miles' range 100 lbs. of bombs must be sacrificed.

The number of night bombing airplanes built and supplied should depend solely upon the number of pilots available. It depends upon the work they have to perform. They cannot be put closer than 1000 yards without tangling the wireless communications. The number built depends upon the strength of the army. There is no limit on bombing

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machines. The number will also probably depend on steamship space for transportation and possibly upon the appropriation.

Each airplane carries 1½ tons of bombs. If we could send out 500 machines every third night, each dropping 500 bombs on the factory towns, there would not be much war after that. That would wreck all railroads, and telephone and telegraph lines would then be destroyed.

Expect Slight Decrease In Gasoline Production

A DECREASE in the supply of fuel for home consumption during the continuation of the war is the prospect for the immediate future. This is the opinion of Dr. E. W. Dean, of the Bureau of Mines, expressed to the S. A. E. Nor after the war closes will the gasoline supply situation be relieved according to the Government expert. Some of the points made by Dr. Dean follow:

The term "gasoline" is generally recognized to be rather indefinite and to define a product applied to a certain use rather than a product of any definite property. The best definition of gasoline at present seems to be "a liquid fuel that will start an automobile engine and keep it running after it is going." Any definition that deals with particular and definite performance usually gets in trouble.

The present refining practice includes three major methods of producing gasoline. One is the ordinary refinery process of distillation from the crude petroleum. The second method is the cracking process. The third is from natural gas. Large quantities of valuable motor fuel are extracted from certain varieties of natural gas either by processes of compression and condensation or by washing with heavier oils.

How Gasolines Differ

These types of products have certain characteristic properties. The straight refinery gasoline is usually composed of hydro-carbons that are decidedly inactive when subjected to chemical treatment. The physical properties of straight refinery gasolines are widely variable. They depend entirely or practically on the method used in refining gasoline. The most important property from the point of internal combustion engineering is that of volatility. All methods used vary somewhat, but in general they are similar and furnish satisfactory basis of comparison.

The prospect for the immediate future during the continuation of the war seems to be that there will be a decrease in the supply for home consumption. It is conservatively estimated that during the present year the military activities will require at least one-fifth of the production, and that it is bound to have some effect on the market. The military gasoline is likely to have higher volatility, and for that reason the home market is likely to have to make up the difference and use less volatile gasoline.

The prospect for the general future is not, however, one which the successful termination of the war promises relief. The supply of crude petroleum is estimated not to last more than another generation and the continuation of actual shortage may result, and it is necessary to prevent this.

One of the possible sources of motor fuel for the future is alcohol, but the price of gasoline will have to increase and the price of alcohol decrease before alcohol can successfully compete. Another possible source is through coal tar distillates, benzol and others. These do not seem to promise a large source of supply.

In the future it appears that all producers in aiding to solve this problem must procure more motor fuel from the petroleum, and designers of engines must work towards higher standards of fuel economy. A certain increase in supply of motor fuel may be counted on in the coal industry.

Several New Standards Recommended by S.A.E.

IN the Standards Committee work, aeronautic considerations occupied far more than half of the time devoted to the meeting. A list of the subjects upon which recommended practices were fixed follows: Dopes—Cellulose Acetate, Cellulose Nitrate, Spar Varnish Specification, Round Steel Wire, Non-Flexible Steel Wire Cable of various sizes, Flexible Steel Wire and Extra Flexible Steel Wire of various sizes, Reels for Cable, Tachometer Drives, Rubber Hose for Gasoline of different types, Plain Hexagon Nuts, Ball Hexagon Nuts, Castle Hexagon Nuts, Ball Hexagon Head Bolts, Plain Hexagon Head Bolts, Rubber Hose Clamps and Fittings, Turnbuckles, Shackles, Clip Ends, Clevis Pins, Engine Testing Form both factory and laboratory, Spark Plugs, Bevel Washers.

Motorcycle standards considered and adopted as recommended practice dealt with spark control, throttle control, kick starters, clutch pedal, brake pedal, chains, oil and grease cups, cylinder displacements, gearshift, carrying capacity, tires, magneto dimensions, headlamp mounting lugs, fuel and lubrication pipe fittings, spoke and nipples, wheel and rim specifications.

New Headlamp Standard

The divisions pertaining to motor car practice which reported were those concerned with the details of roller chains, data sheet, nomenclature, headlamp illumination, headlamp bulbs and miscellaneous fittings. Of most interest to the dealer is a recommendation on headlamps which reads:

"The headlamps shall be so arranged that no portion of the direct reflected beam cone of light, when measured 75 ft. ahead of the headlamps, shall rise above 42 in. from the level surface of the road on which the vehicle stands, under any condition of loading; nor shall any portion of the direct reflected beam cone of light rise, beyond 75 ft. distance, more than 12 in. above the center of the headlamp."

In the tractor division, the recommended practices passed by the meeting cover fuel and lubrication pipe lines, magneto mountings and a standard form of tractor specification sheet. The fuel and lubrication pipe lines are specified as 5/16 outside diameter tubing and ¼ in. pipe thread compression type couplings. The magneto mountings conform, for impulse couplings, to the N. G. E. A. standard practice.

Standard settings for bumpers were also provided as follows:

Table of Standard Bumper Heights and Dimensions

	Front	Rear
Height from center of face to ground.	21	22
Over-all length.....	Between 59 and 60	Between 59 and 60
Bumper face	Flat	Flat
Vertical depth bumper bar min.....	2	2½

Dimensions in inches.

Kettering Made S. A. E. President

NEW YORK, Jan. 10—Chas. F. Kettering, vice-president of the Dayton Engineering Laboratories Co., is the president-elect of the Society of Automotive Engineers.

Kettering has been connected with the Dayton Engineering Laboratories Co. since 1909. Prior to that he was engineer in charge of development work on electric apparatus for the National Cash Register Co. He was graduated from Ohio State University in 1904.

David Beecroft, who is directing editor of the Class Journal Co., and has been active in society affairs for a number of years, is first vice-president. The complete slate follows:

President—Chas. F. Kettering, vice-president Dayton Engineering Laboratories Co.

First vice-president—David Beecroft, directing editor Class Journal Co.

Second vice-president—C. C. Hinkley, president and general manager Hinkley Motors Corp., representing motor car engineering.

Second vice-president—Geo. H. Houston, representing aviation engineering.

Second vice-president—Fred Glover, Emerson-Brantingham Co., representing tractor engineering.

Second vice-president—Henry R. Sutphen, vice-president Submarine Boat Corp., representing marine engineering.

Second vice-president—H. R. Brate, representing stationary internal combustion engineering.

Secretary-General Manager—Coker F. Clarkson.

Treasurer—Chas. B. Whittelsey, vice-president Hartford Rubber Works.

Councillors 1918

B. B. Bachman, engineer Autocar Co., Ardmore.

H. L. Horning, engineer Waukesha Motor Co., Waukesha, and chairman Automotive Section of the War Industries Board.

C. W. McKinley, chief engineer, Willys-Overland Co.

George W. Dunham, past president.

Russell Huff, past president.

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Jobbers Tackle Problem of Dealer and 1918 Business

Believe Big Future in Accessories Lies Just Ahead and Plan to Help Dealers Have Prosperous Year

NEW YORK, Jan. 15—The salesmen of jobbers should be made into preachers of the gospel of business and at this time should be telling to the entire trade that there is a big opportunity coming for the sale of accessories and supplies, was stated by O. R. MacDonald, of the Gibson company, Indianapolis, in addressing the National Association of Jobbers here yesterday afternoon.

The association's annual convention is in session at the Hotel Astor, and is attended by 200 or 300 men from all States.

"A lessening in the sale and production of cars is conceded by all," MacDonald stated. "The cars that will be sold are those which are to serve a useful purpose—and this includes a big percentage of normal output. We know that the four big makers of cars are handling big government contracts, and we also know that they are nevertheless producing cars at near a normal figure.

"When demands for government work have been given to the Automobile Industries Committee at Washington the committee has passed the demand on and made capacity in our factories in excess of government requirements. We all know now that there is no shortage of material.

Big Demand

"There is going to be an abnormal demand for used cars; old cars are to be kept running. All of this is going to bring about the biggest year the accessory trade has ever known.

"But despite all these facts the dealers are apprehensive. They feel uncertain and nervous. They are disturbed by the many rumors that fly about. We know the facts in the situation, although perhaps our stories might vary. I believe it is up to the jobbers to get their facts into a standardized story and present it to the dealers so that their fears may be allayed and they may prepare for the big business that is coming.

"Furthermore, I believe we should advocate that dealers and garagemen take on the agencies for trucks and tractors. This perhaps does not seem to concern us, but it would react to our own benefit. This trade so far is like the old-fashioned three-legged milk stool. If the cow switched her tail it might be upset. With truck and tractor agencies in combination with passenger car and accessory businesses the business of the dealer would be well rounded and more stable. I believe the end of the war will see for the first time a full rounded out business for the dealer. It is up to us to educate our salesmen to the point where they can pass the gospel of sound business and better methods along to the dealer and enable him to help him save himself."

Some members were unable to make the convention yesterday because of disrupted train schedules.

The question of terms was discussed with the majority in favor of not postdating bills. The trade acceptance was mentioned and will be discussed more in detail before the end of the session.

One service star was hung out on a small silk flag in honor of ex-President Sidney B. Dean, of Nicols, Dean & Gregg, St. Paul, who is now in France.

A census of a committee meeting of 16 men disclosed 347 men in the service. On the same basis of computation this would mean nearly 8000 for the total membership.

Prayer for President

The convention, during the opening address of President Charles E. Faeth, stood a moment in silent prayer for President Wilson.

President Faeth said there must be united action by the people at home, and that business men should do their duty by the country and give heed to the welfare of their businesses.

Commissioner Webster reported that a demurrer has been filed in the Sherman law case against the association, and that it should be argued between now and April or later. He mentioned the changed attitude of the government in the Sherman law cases before the Supreme Court.

In connection with the dealer association work by State vice-presidents Commissioner Webster said such organization effort was a "wise and judicious investment." He urged jobbers to assist dealers in adopting better accounting and sales methods in order that the whole trade might be benefited, both jobber and dealer.

Elimination of waste was urged by the commissioner.

Instead of buying an ambulance, for which $2,000 was appropriated some time ago, the committee in charge of this fund used it at the suggestion of the Red Cross to buy food and medicinal supplies for Italian refugees.

It was reported that the credit department has collected $92,000 for members. Telegraphic code books to the value of $1,902 have been sold. There is $16,777 in the bank and $31,000 in bonds, making a total balance of $47,777 in the association purse, not counting the defense fund.

Separate meetings of the jobbers and manufacturers were held yesterday afternoon. Problems of particular interest to each branch were discussed. The jobbers talked over the cost of doing business, the relation of discounts to overhead and the probable effect of new conditions. Freight conditions came in for a share. One Dayton jobber told of two carloads of tires that were six weeks in going from Racine, Wis., to Dayton, and of a shipment of spark plugs that were six weeks in going a distance of 150 miles with no transfers, and that it took five days to get them out of the yards.

Freight Very Bad

Another jobber said it took a load of batteries 14 weeks to go from Buffalo to New York. Another jobber said it took him 29 days to get a load of antifreeze out of the Dayton yards, and that meantime the weather went below zero.

The jobbers in discussion favored the use of literature by manufacturers that would fit a No. 6 envelope, so that jobbers might mail it out without extra expense or difficulty.

There was a lengthy discussion of whether the tire business pays. Some said it did and some said it didn't.

The jobbers' association voted to hold its next meeting at Hot Springs, Va., June 5-12. There was a strong sentiment in favor of Atlanta, which withdrew when Hot Springs seemed more desirable because of its outdoor facilities.

Chairman Stanley Roberts, of the Committee on Assisting the Trade, showed by stereopticon slides what the committee is doing in advertising and distributing propaganda for better business among dealers. A vote of thanks

IF your copy of MOTOR WORLD *does not reach you on the day it usually arrives, wait a day or two before writing about it. It is on the way. These days the railroads are having a hard time and finding it almost impossible to adhere to schedules because of the extraordinary amount of freight which must be handled. Even the United States mails are delayed. The post offices have had hundreds of expert sorters enlist and poor help has taken their places. So wait a few days before you write us that your copy has not been received.*—MOTOR WORLD.

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was extended to the trade papers for their co-operation.

The association decided to open an information exchange and bulletin on surplus stocks, so that jobbers may be informed as to what others have for sale.

It was voted to take out a membership in the National Association of Credit Men, whose assistant secretary, W. W. Orr, explained the trade acceptance. There were numerous questions on the trade acceptance, but no definite action was taken as to its desirability. Many members displayed unfamiliarity with its workings and regard it as quite "new." Several members who have used it spoke emphatically in favor of it.

H. H. Brenner, of Dayton, told how organization work among dealers is being done in Ohio, and cited the advantages of an organization to the dealer and jobber. The Ohio jobbers have pledged about $15,000 to this movement.

When a paper by C. L. Elyea, Atlanta, who was absent, was read, recommending separate organizations for jobbers and manufacturers, the majority present voted in favor of the present plan under which the organization is operating, which is a combination.

H. F. Brownell, Sioux Falls, S. D., aroused the enthusiasm of the members with a statement as to why America is at war, and how and why her business men will be the factor that will win the war.

Officers will be elected to-morrow.

Detroit Expects Good Spring Trade

Despite Coal Shortage and Freight Tie-Up There Is a Strong Undertone of Optimism—Dealers Work to Increase Efficiency

DETROIT, Jan. 10—The automobile industry has for the week moved to New York. The coal shortage is still acute, freight car congestion bad, and manufacturers having Government work are concentrating in placing that work in production. There is a strong undertone that indicates an increasing confidence in business conditions, and predictions for particularly good business in the spring and summer.

Particularly is this reflected in the attitude of the local motor car dealers. Detroit dealers are fortunate in being both close to the factories and the public, and in this respect is quicker to sense coming changes in business conditions. A canvass of the larger local dealers shows a renewed confidence on the part of the public. This as yet has not materially affected sales, but the number of unsolicited inquiries is increasing, and the live prospects for spring and summer business are large. And the dealers have already passed through crises that in normal times would have been considered disastrous—and in each case have weathered the storm. They are simply revamping their organizations to meet the new conditions, and feel that nothing more serious can happen than has happened.

Money Starts to Circulate

Guy Ellis, of the L. J. Robinson Co., Chalmers and Maxwell distributer, explains the present quietness of the trade, and his confidence in the future as due to the fact that much of the ready money in the country is tied up in the Government at present. As soon as munition manufucture starts on a large scale, this money will be started on its circulation cycle. And from then on the dealer will receive his proportional share.

At the start of the war, the ready money was largely in the hands of the rich. Through the Liberty loans this was turned over to the Government. It is now just beginning to be released to the manufacturer, and from now on the workmen and retailers will have more ready money than ever before.

To date this cycle explains business conditions in general. The moneyed people have practically dropped out of the car market. In the first place, much of their money is tied up in stocks and bonds; then they have subscribed heavily to the Liberty loans, or are investing. Limousine buyers are either making the old car do, or are buying a more modest car to meet their needs. And the fly-by-night capitalist, with his $5,000 limousine, apartment and nothing much else, is eliminated. But once the money passes through the hands of the manufacturer, into the hands of the workmen, it will be released and distributed through the regular channels of trade.

Though the Detroit dealers are located close to the source of supply, and do not have to store cars as much as dealers in more remote parts, many are to-day storing cars in anticipation of the coming business. Some are storing from 100 to 150 cars, and this is a large number for this city.

Plenty of Used Cars

In most instances the number of used cars on hand is large, but the dealers as a whole are handling the situation carefully. It is to-day difficult to sell cars on anything but a time payment basis, and in most cases a used car is taken in trade. In general the conditions are worse in this respect than last year, and the attitude of the dealers varies. Some state that the demand for used cars will be exceptionally active, and others fear that the reverse will be true. But it is certain that a good used car, taken in on a fair basis, and sold at a correspondingly fair price, will find ready sale.

Used-car dealers report a marked increase in business in the past two weeks —an increase that has always occurred at this time in the past. While in the case of new cars prospects desire to wait until the automobile shows before purchasing, such is not the case in used cars. Hence the indications of better business are felt in the used car field first.

How Dealers Increase Efficiency

The following are examples that will show what the dealers are doing to increase the efficiency of their sales. Thomas J. Doyle, Dodge Brothers distributer, is putting his salesmen through a course of intensive salesmanship. A catechism has been prepared covering every possible sales argument, and placing carefully worded replies into the mouth of the salesman, so that each condition may be handled diplomatically. And Doyle used the zone system, whereby each salesman has a particular part of the city, and is responsible for that part.

Bemb-Robinson, Hudson distributer, is sending circular letters to every car owner in the territory, and the L. J. Robinson Co. has made a canvass of the entire city. Throughout the trade the dealers are making the step from vending cars to actually selling them.

The salesman problem seems to be exceptionally bad to-day. Not that it is impossible to get men—such is not the case. The problem is to get the type of man that makes a good salesman. These are usually the younger men, aggressive, and willing to take a chance. These men are either in the army or else already employed. The same is true in the service departments, and it is possible that many older men will again come into their own.

This in general sums up the business conditions locally, and in many respects the conditions throughout the country, particularly in those parts supplying material required in the war. At present business is quiet, the prospects for the future are not phenomenal, but the outlook better than at any time since the war started. The automobile business is getting on a war basis, and as an essential part of the country will survive, stronger and better because of the difficulties solved.

Gotfredson Heads Saxon

DETROIT, Jan. 14—Benjamin Gotfredson was elected president of the Saxon Motor Corp. at a meeting of the board of directors held in New York this week. Gotfredson will take the place formerly occupied by Harry W. Ford. He is president and organizer of the American Auto Trimming Co., Detroit.

Women Truck Drivers for Washington

WASHINGTON, Jan. 14—The Depot Quartermaster of the War Department has asked the Civil Service Commission to provide a list of women eligible to drive motor trucks. The Department will use one hundred women motor truck drivers on the streets of Washington at $70 per month to start. None of the drivers will be sent abroad.

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Picard Gives Up His Retail Supply Store

Old-time Accessory House to Devote Entire Time to Wholesaling of Motor Car Products

NEW YORK, Jan. 10—A. J. Picard & Co., Inc., which started business in a small way at 1720 Broadway, New York City, many years ago, which has grown to be one of the largest automobile accessory jobbing and distributing houses in the United States, has discontinued its retail store at 1700 Broadway. The business in future will be exclusively wholesale, and will be handled in the new building at Sixty-first Street and Broadway.

A. J. Picard, head of the company, has been identified with the automobile industry for 20 years, and is the dean of the dealers. He at one time was the representative for the Darracq, when the motor car was looked upon as a curiosity, and drove one of the first road races ever held in this country. He has remained in the business continuously, and has seen it grow to be the third largest manufacturing industry in America.

The company covers all of the eastern United States, with a sales force of twenty-four men, handling a complete line of motor car accessories, serving several thousand dealers. The company is also eastern distributer of the Stromberg carbureter, Gabriel snubber, Apollo Rubber Co., besides being national distributers of the Cenemotor generator, starting and lighting system for Ford cars, manufactured by the General Electric Co.

Hot Spot Demonstration

NEW YORK, Jan. 14—A demonstration showing the value of the Chalmers "Hot Spot" manifold was made Jan. 8 by having one of the touring cars stand for 15 hours on the street near the Grand Central Palace under the observation of an official observer. The motor was stopped for that period, during which thermometers showed the temperature to average below 30 deg. Fahr. all the time. At 10:30 at night, after the 15-hour stop, the motor was officially started. It required 8 seconds with a starter before the first explosion occurred. After this there were one or two stops, when the starter had to be again used, but 41 seconds after the first attempt the motor took hold and began accelerating.

Cassidy to Sell Twombly Pump

NEW YORK, Jan. 14—The Edward A. Cassidy Co. will be the sales representative for the Auto Pedal Pump Co., New York, and will sell the Twombly tire-foot-pump.

No G. M.-Chevrolet Merger

NEW YORK, Jan. 14—Plans for merging the Chevrolet and General Motors companies were again pigeon-holed after a joint directors' meeting yesterday. Both companies have declared a 3 per cent dividend to stockholders as of Jan. 18, the dividend being payable Feb. 1. This is a regular dividend. Directors of both companies stated that there is no immediate intention to consolidate.

Champion Ignition Develops A. C.-Baldwin Speedometer

Will Produce Magnetic Type Named for Albert Champion and Russell Baldwin

NEW YORK, Jan. 14—A new speedometer has been developed, known as the A.C.-Baldwin, which is to be made by the Champion Ignition Co., Flint, Mich. It is a magnetic type, which has been under development for over 2 years and has been tested out very extensively. It will be manufactured at the Champion spark plug factory, the plans being to erect new buildings for its manufacture. Production will not start for some months. The speedometer takes its name from the initials of Albert Champion, coupled with the name of Russell Baldwin, who developed the instrument. Mr. Baldwin was for years connected with the Stewart Speedometer Corp.

Parke Heads Olympian

PONTIAC, Jan. 11—The following officers and directors were elected for the Olympian Motors Co. at the annual meeting of stockholders held Jan. 8: President, Fred K. Parke; vice-president and treasurer, William Passmore; secretary, C. E. Callender; production manager, L. P. Helm; director of sales and advertising, St. Clair Couzens.

New Truck Sales Company for Cleveland

CLEVELAND, Jan. 12—The Diamond T. Cleveland Truck Co. has been incorporated with a capital of $20,000 to sell motor trucks. The incorporators are J. A. Fenner, C. L. Stocker, C. C. Young, A. M. Lovel and F. W. Santon.

King Prices Advanced

DETROIT, Jan. 14—The following are the prices on the new models manufactured by the King Motor Car Co.:

Model	Old Price	New Price
7-passenger touring	$1,650	$2.150
4-passenger Foursome	1,700	2,350
3-passenger roadster	1,585	2,150
7-passenger convertible sedan	2,300	2,950

Wire wheels are extra on all models except the Foursome, and this is regularly equipped with wire wheels and 32 x 4½ cord tires.

Show Brings Changes Along Gotham's Row

Holmes Gets Representation—Sanders Takes Case and Silver Drops the Dort

NEW YORK, Jan. 15—Several changes have been made along the New York motor row with the coming of 1918.

The Holmes Motor Car Co. of New York has been formed to handle the new Holmes car, made by Arthur Holmes, formerly engineer for the Franklin Automobile Co., Syracuse. The sales manager of the new agency is Frederick K. Jones, formerly with the Franklin agency here. Salesrooms are at 1848 Broadway.

The Dort agency, formerly handled by the C. T. Silver Motor Co., has passed to a new dealer, F. W. Wright, Inc., 225 West 57th Street.

The H. A. Sanders Motors Corp., 1876 Broadway, has taken the Case agency.

Brooklyn Company to Handle Marmon

BROOKLYN, Jan. 14—The Marmon Long Island Co., Inc., has been organized to handle the Brooklyn sales of the Marmon. Headquarters will be opened at 1416 Bedford Avenue shortly. The president of the new company is T. B. Van Alstyne, who is also president of the Marmon Automobile Co. of New York, Inc., and Motor Export, Ltd. F. G. Carrie, until last year general manager of the Nordyke & Marmon Co.'s Eastern interests, and now vice-president and general manager of the New York Marmon branch, is vice-president of the Brooklyn concern. Gilbert E. Rodgers has been elected treasurer, and A. G. Perretz secretary and general manager.

Povasco Wheels on 128 Cars and Trucks

POUGHKEEPSIE, N. Y., Jan. 14—The Pouvailsmith Corp. put its factory on a 24-hour basis, beginning Jan. 10. This was necessitated by the volume of orders for Povasco steering wheels, which will be standard equipment on 128 makes of passenger cars and trucks. Two substantial additions to the factory have recently been completed and are now in work, and these, with the installation of new machinery and equipment in the main plant, have more than doubled the company's capacity.

Povasco wheels have been accepted by the Federal authorities for use on the army trucks.

Plan 1500 Famous Trucks in 1918

ST. JOSEPH, MICH., Jan. 14—The Famous Truck Co. plans the production of 1500 trucks during the coming year, and it is stated that all these are at present contracted for.

Shall Canada Out-Courage America?—*Read page 8*
Go to the Chicago Show

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The Week on the Show Circuit

OMAHA, NEB., Jan. 14—Sixty different dealers, with fully 100 makes of motor cars, will occupy space at the thirteenth annual automobile show to be held in Omaha Feb. 25 to March 2. The list comprises a large increase over last year's exhibitors, and the show will undoubtedly be the biggest ever staged here. The show will be put on as usual in the municipal auditorium, to which an annex will be built, as was done last year. Clarke G. Powell is in charge, also as usual.

In answer to a faint objection raised to the holding of a show this year, it was mentioned that Omaha's automobile business this year was $39,814,157 as against $25,660,134 in 1916, and that accessory business in 1917 was $7,713,873 as compared with $4,347,000 in 1916, while the number of commercial cars handled in this territory has been doubled in this period.

Baltimore Getting Ready

BALTIMORE, Jan. 14—Drawings for Baltimore's Automobile Show, which will open at the Fifth Regiment Armory on Jan. 22 and continue to the 26th inclusive, and which will be held under the auspices of the Baltimore Automobile Dealers' Association and the Automobile Club of Maryland, show the following firms represented:

Westcott Motor Sales Co., Westcott; Rice Motors Co., Jeffery and Simplex; Locomobile Co. of America, Locomobile; Blair Motor Co., Saxon; Keller Sales Co., Paterson; Central Auto Co., Empire; Stuart Auto Co., Hupmobile; Auto Sales & Service Corp., Elcar; Sterrett & Flemming, Detroit-Electric; Motor Sales Mfg. Co., Scripps-Booth and National; Parkway Garage, Auburn; Glide Motor Co., Glide; Auto Sales Co., Oldsmobile; Seitz Auto Co., Velie Schall-Crouch Auto Co., Paige; Lambert Auto Co., Hudson; H. S. Block, Chandler; Eliason Bros. Motor Co., Mitchell; Star Motor Co., Bour-Davis and Grant; White Co., White; Olympian Motor Sales Co., Olympia; Chevrolet Motor Co., Chevrolet; Zell Motor Co., Chalmers and Peerless; Ford Dealers' Association, Ford; Neely and Ensor Auto Co., Cole 8; Winton Co., Winton; Motor Car Co., Overland and Willys-Knight; Mar-Del Mobile Co., Packard; Walter Scott, Marmon; Reinhard Motor Car Co., Oakland; Foss-Hughes Co., Pierce-Arrow; Standard Eight Co., Standard 8; Union Motor Car Co., Maxwell; Franklin Motor Co., Franklin; Standard Motor Co., Cadillac; United Auto Sales Co., Studebaker; Eastwick Motor Co., Dodge; Howell Motor Co., Reo and Apperson; Beam Motor Car Co., Premier; Hummer Auto Co.

Orman to Manage Indianapolis Show

INDIANAPOLIS, Jan. 6—John B. Orman, who has managed several automobile shows in Indianapolis, was chosen by the Indianapolis Automobile Trade Association to conduct the 1918 show, which will be started Feb. 25. The show will be held in the new plant of the Diamond Chain & Mfg. Co.

Omaha Will Need Two Buildings—Baltimore Getting Ready—Orman to Manage Indianapolis—Savannah Expects Show

Savannah May Hold Spring Show

SAVANNAH, GA., Jan. 13—Plans are now on foot which seem to assure that Savannah will have what her automobile dealers have long desired, a first-class show. It will in all probability be held in the spring in the newly completed $300,000 Municipal Auditorium.

Here's a New Dodge

OMAHA, Jan. 14—Do they do it in the East? They do here. They put the risk of bootlegging upon the dealer in automobiles.

Nebraska went dry in May, 1917. The Reed amendment to the United States Constitution, forbidding transportation of liquor into dry States, became effective July 1, Among the provisions of the Reed amendment was one that the vehicle in which liquor is found to be transported into a dry State is forfeit and subject to sale by the authorities in the city or county where the arrest is made.

It looked like a big risk to the bootleggers at first, but they soon got round it.

The plan now is to buy an automobile, preferably one of the medium grade cars, with fair carrying capacity and not too high a price, making a small payment down and giving paper for the balance. Then, when the officers seize the car on finding it employed in liquor transportation, it is still the property of the dealer, and upon him falls the loss when the car is sold at auction.

Spokane Forms Association

SPOKANE, WASH., Jan. 12—The dealers of this city have formed an association. A banker, Fred Alspaugh, has been made treasurer, and a secretary is to be selected later by a committee named for that purpose. The other officers are: President, Harry Twitchell, John Doran Co.; first vice-president, E. C. Finlay, Eldridge-Buick Co.; second vice-president, Guy E. Riegel, Seven-Seven Co.

Executive Committee—H. M. Eastman, Eastman Motor Car Co.; John Doran, John Doran Co.; C. P. Brewer, Brewer Motor Car Co.; Floyd J. Logan, Floyd J. Logan Co.; R. F. Blackwell, Fosdick Auto Co.; W. H. Barnes, T. J. Young, Inc.; D. F. Bacheller, W. C. Garbe Motors Co.

Trustees—F. A. Williams, F. A. Williams Co.; H. Berg, Automobile Clearing House; W. W. Trumbull, Spokane Auto Co., and R. L. Strickle, Oldsmobile Co.

Cedar Rapids Show Coming Well

CEDAR RAPIDS, IOWA, Jan. 12—The eighth annual show of the Cedar Rapids Auto Trade Association will be held at the Auditorium March 11 to 16. Two floors will be used, the lower being given over entirely to passenger cars and the upper to trucks and accessories. Nearly all the available space already has been sold.

Big Winnipeg Convention

WINNIPEG, Jan. 14—The Manitoba Motor League is arranging a big convention to take place in Winnipeg Feb. 20 and has invited the co-operation of the Trade Association. Representatives of all the four western provinces will be in attendance and several prominent members of the provincial governments have promised to speak on matters affecting the motorist.

Two New Staybestos Branches

PHILADELPHIA, Jan. 14—The Staybestos Mfg. Co. has opened an office in the Kerr Building, Detroit, under the management of W. C. D. Comb, Jr., and another at 608 South Dearborn Street, Chicago, with Edwin E. Coith in charge.

To Have Gasoline Administrator

WASHINGTON, Jan. 10—In addition to the administrators of food and fuel there is now to be an administrator of oil and gasoline. He will operate under Director Garfield of the fuel administration.

During the early stages of control the oil industry will be allowed to continue on its present basis without interference that would not be supported by full information on its position. The initial stages of control will deal almost exclusively with the problems of facilitating distribution and promoting conservation measures.

Auto Body to Increase Production

LANSING, Jan. 14—The Auto Body Co. will manufacture 75 additional bodies daily, beginning Feb. 1. The company has received an order from the Scripps-Booth Corp., Detroit, for 12,000 bodies, and work on this contract will be started on that date. At present the production amounts to 300 bodies daily, of which 100 are sent to the Olds Motor Works.

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Motor Trucks Will Help Win the War

Service to the Government Called First Great Need at N.A.C.C. Truck Makers' Convention—Truck Must Be Looked On in Light of a Real Necessity

THE keynote of the Motor Truck Manufacturers' Convention held by the National Automobile Chamber of Commerce last week was service to the government. "The automobile industry is more interested in having democracy as usual after the war than it is in having business as usual now," said Hugh Chalmers, and that remark epitomized the meeting.

More than 100 of the most prominent truck makers of the country heard H. L. Horning, chairman of the Automotive Products Section of the War Industries Board, say: "The motor truck is a national necessity."

The great problem now before the motor truck industry is to prove the feasibility and practicability of employing the motor truck to relieve the acute railroad congestion which is bound to increase as our rolling stock wears out through lack of proper care and as our Government's preparation increases to keep our army of one million men supplied 3000 miles from their base.

Major Edward Orton, Jr., Q. M. C., U. S. A., told of a great work which the Government is now doing in driving its standardized war trucks and other trucks still being shipped on previous orders overland from their points of assembly to the seaboard. He pointed out that the most important effects of these overland drive-aways of war trucks are not in the 15,000 freight cars saved for other needs or for the 100,000 tons of freight which they will carry, but instead are the great educational value which these long convoys of trucks will have upon the people of America to make them wake up to the fact that we are really at war.

These trucks will be the first physical contact which a large proportion of our citizenship has had with the materials of the war. These war trucks will be one of the first object lessons of the war and of the great preparations which our officials in Washington are making to assure a victory for our arms.

The second great benefit of these drive-aways will be the bringing to the citizenship of the great necessity for overland motor routes and roadways capable of withstanding motor truck traffic and of roads which actually lead somewhere, and do not branch out to obscure points as had been caused by the individual road-building programs of our several states.

The Lesson of the War Trucks

This need has long been in existence, but it will be the lesson taught by these war trucks that will bring it to the fore and result in the great development of our national highways. These great drive-aways of our 30,000 or more war trucks will have a bigger immediate military advantage than a commercial one. This will be in the training of the great personnel of truck drivers, truck masters and mechanicians required to keep our trucks in motion.

He briefly outlined the many months of study which were necessary before the first drive-away was successfully accomplished. He told of how engineering reports on the roads had to be secured; how routes had to be selected; how road maps had to be secured from the topographical departments of the several states through which the route led; of building gaps in the proposed road; of repairing such parts of roads selected as were impassable for trucks; of the co-operation which had to be expressed by the state highway departments of the various states to keep the route clear of snow during the winter months and of the necessity of supplying doctors, kitchen equipment, oil-filling stations along the route, sleeping quarters and a plotting of the various truck assembly plants and their relation to the main cross-country route.

David S. Ludlum, president of the Autocar Co., Ardmore, Pa., spoke of the positive necessity of establishing schools where motor truck drivers could be trained instead of trying to give them training for a few hundred miles in the overland drive-aways. He brought out the fact that the great purchase of motor trucks would mount into millions of dollars and that it would be folly to entrust this vast investment to the hands of unskilled men who might abuse the trucks by their inexperience.

Hugh Chalmers made a great appeal for a better understanding of what the war really means to the automobile and motor truck industry. He briefly sketched the work of the automobile industry committee in Washington and how it was partially instrumental in blocking the proposed curtailment of the automobile industry because of the misinformed assumption that it was a non-essential. He stated that there would be no official curtailment of the motor car industry except in so far as the question of materials arose.

Several Shocks to Come

He stated that the citizens of the United States will have to meet several great shocks in the near future. The automobile industry will have to meet these shocks as well as the other great industries of the nation. He told of a recent movement in Washington to cancel the New York and Chicago National Automobile shows in order to save

The Platform on Which the N. A. C. C. Truck Makers Stand

1. Resolved, That the motor truck manufacturers of the United States, in convention assembled in New York on January 8, 1918, hereby tender to the President of the United States, to the Secretary of War and to the Council of National Defense, their services and co-operation in meeting the transportation needs of the Government and the country, and offer the facilities of their factories to aid in the prosecution of hostilities against the Governments of countries with which the United States is at war. It is resolved, That copies of this resolution be addressed to the President and the Secretary of War.

2. Whereas the present unprecedented crisis in the railroad transportation service of the country has made imperative an extraordinary development of motor trucking by highway to meet the needs of the War Department of the Government and of the industry and commerce of the United States, and

Whereas it is essential to the effective use of motor vehicles as a measure of relief of freight and express congestion that the main highways be put and kept in good usable condition for the movement of the products of farm and factory, it is

Resolved, That the Director-General of the Railroads be urged to raise the embargo against the use of open-top railroad cars for the shipment of road materials and machinery in sufficient time to permit of resumption of highway construction and repair early next spring in the Northern States and, if conditions permit, that this portion of the order be rescinded this winter in so far as it affects the Southern States and California.

3. Resolved, That a committee of five representatives of motor truck manufacturing companies be appointed by the president of the National Automobile Chamber of Commerce to co-operate with and assist the Highways Transport Committee of the Council of National Defense in working out problems arising in connection with the organization and development of transportation by public highway for the relief of railroad freight congestion and to facilitate the movement of military trucks and the transportation of the mails.

4. Resolved, That the representatives of motor truck companies in attendance at this convention indorse unanimously the work and plans of the Highway Transport Committee of the Council of National Defense and hereby tender the full co-operation of the motor truck industry in developing ways and means for increasing the effectiveness of the motor truck in moving merchandise and other freight and express matter.

5. Resolved, That the motor truck manufacturers of the United States, assembled in convention January 8, 1918, who view with increasing apprehension the various forms of drastic motor truck legislation already passed and other forms threatened, hereby appeal to the Council of National Defense, asking the council to request the various States in this time of stress when transportation is the need of the hour, to refrain from passing or enforcing and unreasonable legislation that would interfere with motor truck transportation.

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railroad transportation and coal with which to heat the show buildings. It was partially due to the work of his committee that these movements were sidetracked. He pointed out that of all years in the history of the automobile industry 1918 was the one year in which the shows should be continued, in order that the necessary readjustment between the passenger car maker, his distributer and his dealer might be effectively met and that the calling off of the shows at this time would entail a great financial loss of thousands of dollars due to previously arranged contracts and preparations.

He also spoke of the possibility of closing down all the schools and churches in this country for a period of one week. In this connection he said it was also possible that all of the industries might have to shut down completely for one week, including those of the automobile and motor truck, in order to relieve the acute railroad congestion and start off anew under better conditions at the end of the shutdown. He gave it as his opinion that he would rather shut down completely for one week than to run at the present inefficiency with the almost positive assurance that the efficiency of the plants would be further decreased unless the present railroad congestion was immediately removed.

H. L. Horning, of the Automotive Products Section of the War Industries Board, pointed out that the motor truck has the greatest chance for development in the history of the industry. He pointed out the possible use for from 100,000 to 300,000 motor trucks in the parcel post delivery system of this country, and said that it was necessary for motor truck manufacturers to get behind legislation in Washington to make this possible. With the use of motor trucks in this work made possible through government legislation, the various truck companies would advance the idea of the necessity of the motor truck much more rapidly than they would if they should first try to sell their trucks separately to the Post Office Department. It was also his opinion that the motor truck has not yet been sold to the country at large, and that the surface of the possibility of motor truck use has only as yet been scratched.

Plenty of Gasoline

One of the startling statements made by H. L. Horning was to the effect that there is an over-production of gasoline today of more than 1,000,000 gallons a day.

Horning, in his official capacity in Washington, has already been in receipt of many inquiries from motor truck manufacturers as to obtaining priority orders for the shipment of goods entering into motor truck manufacture, and brought out the fact that notwithstanding that these makers have A-1 priority orders, they could still not get materials.

In his opinion, the remedy for this difficulty lies in the motor truck establishing its status as a national necessity. If motor truck makers can prove to the Government the necessity for using more and more motor trucks in order to relieve the freight congestion and can actually relieve it, the status of the motor truck will become firmly fixed and there will be no question as to the various makers not getting sufficient material to produce their vehicles.

The need for a Federal statute controlling the operation of motor trucks in every State of the Union was the outstanding feature of the talk given by Windsor T. White, chairman of the N. A. C. C. Commercial Vehicle Committee, on "Legislation Affecting the Use of Motor Trucks." White's paper treated of the present non-uniformity of existing laws regarding the operation of motor trucks, and the fact that a truck owner operating his vehicle in more than one State would have to equip his trucks with different sized tires if the various laws were carried out to the letter. In some cases the trucks which could be operated in one State could not be run in another on account of the difference in the existing laws.

S. M. Williams, of the Garford Co., Lima, Ohio, made an appeal for the immediate building of national highways suitable for continuous motor truck traffic. These roads will have to come first because our present thoroughfares are not able to withstand the greatly increased amount of freight which trucks will have to carry over them within the next year.

Some Laws Unfair

J. F. Winchester, secretary of the Motor Truck Club of New Jersey, told of unfair laws controlling the operation of motor trucks in his State, and of how from 60 to 70 per cent of all the trucks operating in New Jersey at the present time will be barred if the new law were inforced to the letter. He brought out the fact that according to the present law, which went into effect Jan. 1, 1918, 5-ton trucks like the Pierce-Arrow, Packard, Mack and others which carry over 66 per cent of their total load on the rear wheels, would not be allowed on the road if the present reading of the law that not more than one-third of the total weight be carried on any one wheel were strictly enforced.

Roy D. Chapin, chairman of the Highways Transport Committee, told of the great need of transportation in order to win the war. He mentioned the inadequacy of our present rail, inland water and ocean transportation, and of the great possibility of motor truck haulage provided suitable roads were built and properly maintained.

The great reliance which the Government departments are now placing upon the motor trucks was brought out by a request made to the Highways Transport Committee by the Shipping Board asking that the war trucks driven overland carry parts of ships now urgently required at the yards along the Eastern seaboard. The work which trucks can accomplish in relieving the present terminal congestion was also discussed, and the necessity for good roads kept opened all the year around made evident the trucks were to succeed in this important work.

Problem of Return Loads

The problem of return loads must also be solved if the trucks are to operate at their maximum efficiency. Chapin told of the plan now being introduced in the State of Connecticut in which a Return Loads telephone number be placed in the telephone directory of each city. Then if a driver carries a load from one city to the other, all he has to do is to call up Return Loads in the city to which he has driven and inquire if there are any loads to be returned to the city from which he has come.

George H. Pride, also a member of the Highways Transport Committee and himself an operator of a large fleet of motor trucks, told of the great possibility of motor truck use in emergencies where time is paramount; in the delivery of express material; in the haulage of high grade or high rate L. C. L. freight shipment; of the possibility of eliminating grating when goods are hauled by trucks, and of combined long inland waterway hauls by garages and short motor truck hauls at each end of the route.

The positive need for a new type of motor truck road built upon a new engineering and logical basis was the gist of the remarks of George C. Diehl, who is chairman of the Good Roads Committee of the American Automobile Association.

The necessity for and the probable appointment of one centralized Government purchaser of motor trucks in Washington was the high spot of the important address of Christian Girl, director of production, military truck division, Quartermaster Department U. S. A. Girl outlined briefly the development of the Government motor truck program and of the necessity of the truck industry selecting a representative in Washington to assist the Government in carrying out this vast undertaking. He favors putting the burden of the production of suitable motor trucks in sufficient quantities to make possible the Government's ambitious program directly upon the motor truck industry. Such a move would greatly simplify matters and will undoubtedly come to pass within a short time.

M. A. M. A. Re-elects Officers

NEW YORK, Jan. 10—The Motor & Accessory Manufacturers' Association yesterday held its annual meeting and re-elected four retiring directors: Christian Girl, Standard Parts Co., Cleveland; E. H. Broadwell, Fisk Rubber Co., Chicopee Falls, Mass.; E. W. Beach, Manufacturers' Foundry Co., Waterbury, Conn.; L. M. Wainwright, Diamond Chain & Mfg. Co.

All of the officers of the association except the secretary were re-elected as follows: President, C W. Stiger, Stromberg Motor Devices Co.,. Chicago; first vice-president, C. E. Thompson, Steel Products Co., Cleveland; second vice-president, E. H. Broadwell, Fisk Rubber Co., Chicopee Falls, Mass.; third vice-president, T. J. Wetzel, Precision Die & Casting Co.; treasurer, L. M. Wainwright, Diamond Chain & Mfg. Co.; assistant treasurer and secretary, W. O. Rutherford, B. F. Goodrich Co. A. P. Sloan, formerly assistant treasurer, remains a member of the board of directors.

The fourteenth annual banquet, held at the Waldorf yesterday, was attended by over 500 members. After an address of welcome by President Chas. W. Stiger, a combined dinner, vaudeville performance, war lecture, and war movie show took place, and continued until 1:30 a.m.

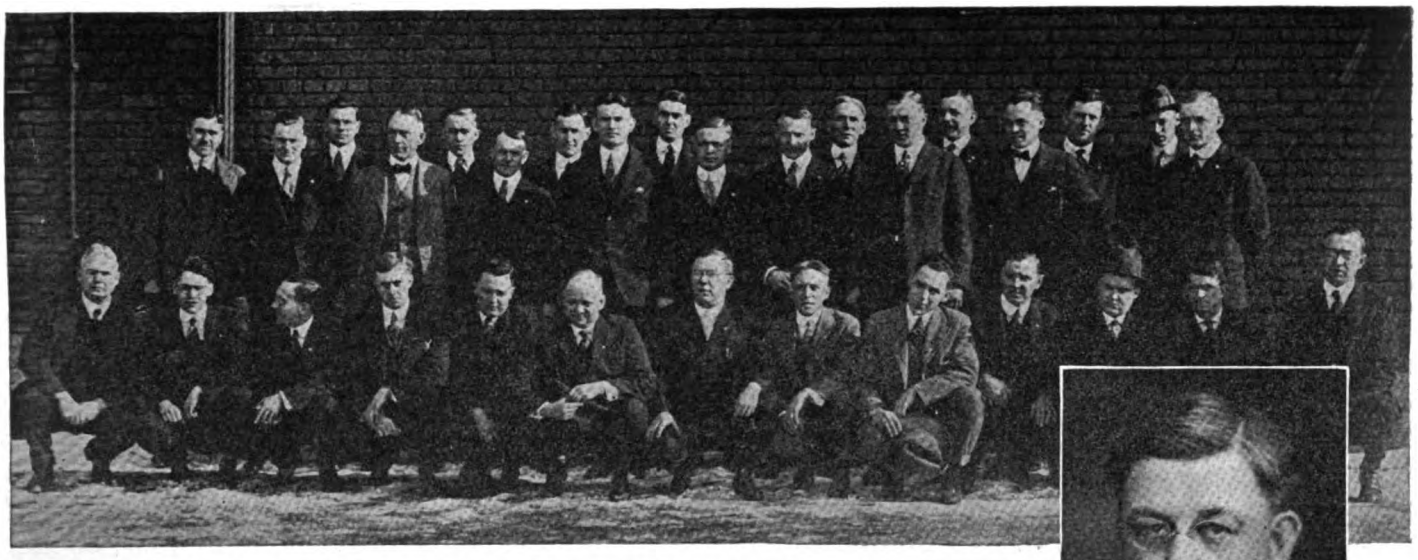
Grossman Men Join Colors

BROOKLYN, N. Y., Jan. 14—The following men from the Emil Grossman Mfg. Corp. have recently joined the Army and Navy: N. P. Aprice, J. Caputo, A. Curcio, P. Heinz, J. Fisch, A. Gluckman, M. A. Lazarus, N. Macaluso, M. S. Rosen, R. R. Rosenquist, M. Schwartz and C. Zalamety.

Second Truck Train Arrives

NEW YORK, Jan. 14—The largest fleet of government war trucks yet driven overland arrived at Governor's Island Jan. 8 after a 300-mile trip from the factory of the Pierce-Arrow Motor Car Co., Buffalo, N. Y. The train consisted of forty-six 5-ton Pierce-Arrow trucks, manned by 100 members of the Twentieth United States Engineers in command of Capt. J. K. De Loach and Lieut. G. C. Eastman. The convoy left the Pierce-Arrow factory on New Year's morning and ran east across the State to Albany and then followed the Hudson River Valley on the eastern side of the river down through Ossining, Peekskill and Yonkers to New York.

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The Gibson Co. salesmen and Sales Manager O. R. McDonald



1918 to Be Big Year for Accessory Lines

Indianapolis Jobber's Men in Sales Convention Foresee Great Possibilities

INDIANAPOLIS, Jan. 10—The year 1918 offers broader and more substantial possibilities for the wholesale and retail automobile accessory trade of the United States than any year in the history of the business.

This was the outstanding conclusion reached at the annual two-day conference of salesmen of The Gibson Co., accessory distributer and representative of manufacturers, which was held here last week.

The fact that there are now about 4,000,000 cars in use in this country, and that these automobiles will continue to be operated despite the war, means, according to conclusions of the conference, that there will be a big volume of accessory business the current year. Even should a sharp curtailment of new car production occur, the cars now in use would still have to be supplied with accessories and other supplies.

Joseph M. Bloch, manager of the company and a director of the National Association of Automobile Accessory Jobbers, expressed keen optimism over the business outlook in addressing the conference. O. R. McDonald, newly appointed manager of the accessory department, directed the conference.

In addition to Gibson department heads who addressed the various sessions representatives of manufacturers were also on the program. Among them were the following: National Carbon Co., Cleveland, O.; Dayton Wire Wheel Co., Dayton, O.; Firestone Tire & Rubber Co., Indianapolis; Jenkins Vulcan Spring Co., St. Louis; Findeisen & Kropf Mfg. Co., Chicago; McQuay-Norris Mfg. Co., St. Louis; Imperial Brass Works, Chicago; U. S. Light & Heat Corp., Niagara Falls, N. Y.; Platt & Washburn Refining Co., Bayonne, N. J.; Weaver Mfg. Co., Springfield, Ill.; Sparks-Withington Co., Lansing, Mich.; General Electric Co., Ft. Wayne, Ind.

Opportunities for Connecticut Dealers

HARTFORD, Jan. 13—The deposits of the people of Connecticut in savings banks and trust companies amounted on Oct. 1 to $400,305,985.31, an increase of almost $28,000,000 over the amount of deposits on Oct. 1, 1916. It has been figured out that the increase is sufficient to purchase 22,000 medium-priced motor cars.

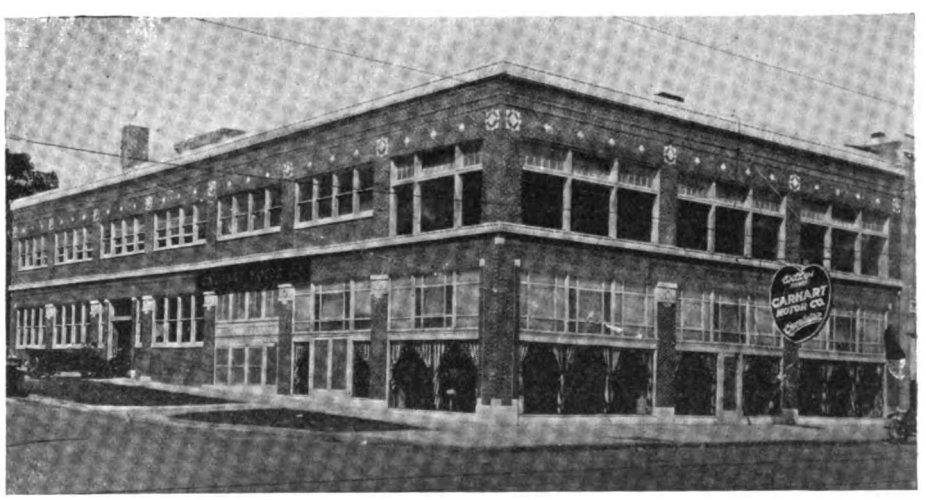
Alberta Taxes on Wheelbase

WINNIPEG, Jan. 14—A new style of automobile tax has been brought into effect in the province of Alberta where the tax is now charged on wheelbase instead of horsepower. The schedule follows:

Not exceeding 100 in., $15; not exceeding 105 in., $17.50; not exceeding 110 in., $20; not exceeding 115 in., $22.50; not exceeding 120 in., $25; not exceeding 125 in., $27.50; not exceeding 130 in., $30; not exceeding 135 in., $32.50; over 135 in., $35. Figuring on this basis the fee for a Ford car will be $15. Electric cars will be charged a straight fee of $15. All fees include the supply of the number plates.

St. Paul Wants Wheel Tax

ST. PAUL, Jan. 5—The city is considering plans to raise $100,000 revenue a year from a wheel tax. Saloons are diminishing and money must be raised some way. Other means will be considered also, so vehicles will not have to make up the whole deficit.



Carhart Motor Co's. building where Oklahoma City's show is to be held

Saw Wood—Read Page 5
Go to the Chicago Show

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

E. K. Conover, formerly manager of the windshield department of the Paige Steel & Wire Co., is entering the windshield department of the Zenite Metal Co., Indianapolis. The windshield department of the Paige Steel & Wire Co. was recently sold to the Motor Products Corp. of Detroit.

I. D. Landis has been appointed sales manager of the Elkhart Carriage & Motor Car Co., Elkhart, Ind., and has assumed his new duties. He was formerly advertising manager and director of sales correspondence for the Crow-Elkhart Motor Co.

Russell T. Gray, formerly advertising manager of the Haynes Automobile Co., has entered business for himself as advertising engineer, and has opened offices in the First National Bank Building, Chicago.

D. B. Williams has joined the Clydesdale Motor Truck Co., Clydesdale, Ohio. He was formerly with the Mutual Motors Co., Jackson, Mich.

O. S. Johnson, formerly manager of the Lee Tire Branch, in Boston, will open a branch for that firm at 3205 Locust street, St. Louis. B. C. Layman will be assistant manager.

E. W. Arbogast, for several years connected with retail distribution in St. Louis, has joined the staff of the F. B. Stearns Co. as district sales manager.

E. E. Wilmer, who for some time was manager of the Hampden Auto Sales Co., Baltimore, Lexington distributer, has become associated with the Seitz Auto Co., as service manager. The latter company handles the Velie.

Charles E. Willar, who had been selling the Oakland line for Eliason Bros. Motor Co., Baltimore, has joined the Reinhard Motor Car Co., Oakland distributer.

L. P. Murray, formerly mid-western manager of S. F. Bowser & Co., Inc., Toronto, has been appointed Canadian manager with jurisdiction over the Canadian office, factory and sales force. The Canadian activities have recently been under the direction of Harry Christie, who will now turn his attention entirely to the sales organization throughout Canada. The head office of the company for Canada is at 66 Fraser Avenue, Toronto.

Otis C. Friend, who recently resigned the presidency of the Mitchell Motors Co., has returned to the United Motors Corp., New York, and reassumed the duties of vice-president. He is at present on vacation in California and expects to resume his duties Feb. 15.

H. W. Biddle, formerly with the Roberts-Toledo, O., a Toledo jobbing house, has joined the Silvex Co., Bethlehem, and will have charge of Chicago and the West.

J. Wadsworth Staff, formerly with the Silvex Co., in Chicago, has set up for himself as the Highway Mfg. Co., and has opened an office in the Lytton Bldg., Chicago.

Clarence B. Hawke has become affiliated with the sales division of the motor parts department of the Rich Tool Co., Detroit. He was formerly connected with the Chicago factory.

Carl Walthers, for several years manager of the Moon Motor Co. service in Chicago, has been transferred to St. Louis to a similar position.

W. E. Conway, Jr., manager of the St. Louis Branch of the Garford Motor Truck Co., has been commissioned a captain in the Aviation Corp. F. E. Snell, district manager, has been made manager of the branch.

A. E. Archer, president of the Detroit Electric Sales Co., St. Louis, has been made a captain in the Ordnance Reserve Corp of the U. S. Army. No immediate changes in the staff of the company are regarded as necessary.

F. W. Schwerdtseger has been appointed designing engineer of the Air-O-Flex Automobile Corp., Detroit. In the past he has been chief engineer of the United States Motor Truck Co., connected with the General Motors Truck Co., experimental engineer with the Federal Motor Truck Co., and designing engineer of the Denby Motor Truck Co.

Acme Truck Holds Sales Convention

CADILLAC, MICH., Jan. 14—The general factory representatives of the Acme Motor Truck Co. convened at the Cadillac plant for the annual sales conference Jan. 3, 4 and 5. Representatives from all parts of the United States were present. The daily sessions were presided over by W. A. Kysor, president and general manager of the company, and C. J. Helm, sales manager. The Acme Motor Truck Sales Co., Cadillac, will handle Acme trucks in northern Illinois, southern Wisconsin and Iowa. The organization is headed by M. M. Ulfers and A. L. Slusser, formerly with the Perfection Vapor Light Co., Freeport, Mich., and J. B. Marshall, who has been a factory representative of the Acme company.

Cleveland Firm to Sell Bodies

CLEVELAND, Jan. 12—The Columbia Body Sales Co. has been incorporated with a capital of $25,000 to sell bodies for automobiles. The incorporators are Joseph B. Pospehil, J. H. McTaggart, P. M. Barry, Fred L. Bennage and Roscoe M. Ewing.

More Capital for Lane

KALAMAZOO, MICH., Jan. 9—The Lane Motor Truck Co. will increase its capital stock from $25,000 to $225,000. This increase is necessary to care for expansion, and is expected to speed production up to ten per week immediately.

Scrap Metal Prices

NEW YORK, Jan. 9—Following are prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age:*

	Cents Per lb.
Copper, heavy and crucible	22.00
Copper, heavy and wire	21.00
Copper, light and bottoms	19.00 to 19.50
Brass, heavy	14.25 to 14.50
Brass, light	10.50 to 10.75
Heavy machine composition	20.00 to 21.00
No. 1 yellow brass turnings	14.00 to 14.25
No. 1 red brass or composition turnings	17.50
Lead, heavy	5.75
Lead, tea	4.25
Zinc	5.25

1500 to Attend S. A. E. Chicago War Dinner

Over 1000 Tickets Already Sold and Dinner Likely Will Be Largest Ever Held

NEW YORK, Jan. 14—The War Dinner of the Society of Automotive Engineers, which will be held at the New Morrison Hotel, Chicago, on Friday, Feb. 1, as a climax to the special tractor meeting of the society on the same day, promises to be the greatest in the society's history. It will provide comfortable seating for 1500 diners; approximately 1000 seats have been sold already. The special program should stamp the event as perhaps the greatest war dinner of its kind held in Chicago.

To help carry out the war spirit, a $25,000 pipe organ has been specially installed in the hotel dining room. In addition, music will be furnished by an orchestra of 30 pieces. There will be 50 singers from the Apollo Club, one of the largest musical organizations of the Windy City. Only war music will be sung and a special program is being handled by the Mid-West Section, with B. Ayres, of the section, in direct charge.

The professional tractor session will start at 1:30 p.m. on Friday, Feb. 1, in the Crystal Room of Hotel Sherman. The program deals with engineering under such heads as: Fundamentals of General Tractor Design; Fundamentals of Transmission Systems in Tractors; Fundamentals of Engine Design, and Tractor Service.

Carlisle Perfecting Distribution

NEW YORK, Jan. 14—The Carlisle Cord Tire Co., which was formed May 7, 1917, is rapidly perfecting its system of distribution. Following are a few of the dealers who have recently contracted to distribute Carlisle tires. On the Pacific Coast: Tansey-Crowe Co., San Francisco; Kimball-Upson Co., Sacramento; Pacific Tire & Rubber Co., Los Angeles, and San Jose Auto Supply Co., San Jose; in the East: Post & Lester, with their chain of stores operating in Connecticut; Dayton Tire Co., Boston; Invincible Tire Co., Providence, and Del Chase Tire Co., Brooklyn; in the middle West: Auto Tire Sales Co., Minneapolis; Curtis Rubber Co., Milwaukee; James T. Short, Louisville, and Sherwood-Crippen Co., Columbus.

Rockford Association Prospers

ROCKFORD, ILL., Jan. 14—The Rockford Automobile Trade Association elected new officers this week for the ensuing year as follows: President, W. B. Taylor; vice-president, E. J. Gustafson; secretary-treasurer, W. H. Robertson. The Rockford association was organized two years ago, and there has been no falling off in attendance or interest, the good results of such an organization being almost daily demonstrated. Cut-throat competition has been eliminated.

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The pictures show the optimists at dinner and out for the air

Northwestern Chemical Co. Men See Big Year Ahead

THE annual sales assembly of the Northwestern Chemical Co. was held the first week of the new year in Marietta, Ohio. At the first meeting General Manager Hall said: "Boys, we are going to face conditions this year so unusual, so full of inconveniences, that we must be emergency men twenty-four hours a day. Let's greet every obstacle with a smile. Let's remember that we are at war. When a train is late, smile and do your bit. When you can't get Pullman accommodations smile and do your bit; when the bell-hop gives you a candle and announces that the electricity is off, or when you are put in a cold room because of coal shortage, just figure that you are in the trenches, and do your bit. Our first job is to win this war, and the conveniences of commercial life are going to get a few solid jolts. The spirit in which we take them is what's going to count."

Hunt Eastern Reo Wholesale Manager

NEW YORK CITY, Jan. 15—J. J. Hunt, formerly in charge of the Eastern wholesale department of the Reo company, has now been made retail sales manager of the Eastern branch, which includes the New York City, Brooklyn, Newark and New Rochelle territories. A. M. Welch, formerly a factory executive for Marmon, is now assistant sales manager. W. A. Dalton, formerly in charge of the Brooklyn branch, is now sales manager of the New York organization and F. D. Palmer, who up to Jan. 1 was in charge of the local used car department for Studebaker, is now in charge of the local Reo used car department.

Overland Earnings Put at $8,500,000

TOLEDO, Jan. 14—Willys Overland has made a reduction of 66 per cent. in its quarterly dividend, payable Feb. 1, because of heavy expenditures necessitated by the transition of the plant from a peace to a war basis. The dividend is 25 cents, payable Feb. 1, to stock of record on Jan. 25. This is equivalent to 4 per cent a year on the $25 par value of the stock, as compared with the usual 12 per cent.

Subject to final audit Willys Overland earned for the 12 months ended Dec. 31 net profits of $8,500,000, before deduction of the Federal excess profits taxes, which cannot yet be determined, but which it is estimated will not exceed $600,000. During the final quarter of 1917 the company was in process of transition from a peace to a war basis, in order to care for the manufacture on a large scale of motors and parts for the Curtiss Aeroplane Corp., as well as for heavy orders for the United States Government.

Disco Electric Starter Reorganized

DETROIT, Jan. 15—The Disco Electric Mfg. Co. has taken over the bankrupt Disco Electric Starter Co. and is planning extensive manufacture of Disco starters for Ford cars. Nothing has been carried over from the old company, except the name Disco; both the capital and personnel are entirely new. Dean Emerson of the Wagner Electric Co. has been appointed general manager and Harry F. Prescott, formerly with the Saxon Motor Car Co., is sales manager. A new building, which was occupied by the old company for a short period, is being used. The company is in a position to manufacture practically any electrical equipment for motor cars and it is rumored that it may enter this field.

DETROIT, Jan. 14—A $1,500,000 corporation, headed by Albert Reiss, a retired commission merchant, has been formed by Detroit, Toledo and Chicago business men to operate 100 trucks between those cities. The trucks will run in trains of five, each train carrying ten drivers and two mechanics. A tentative schedule allows 12 hours for the trip from Toledo to Cleveland, 5 hours from Toledo to Detroit, 18 hours from Toledo to Cincinnati and 24 hours from Toledo to Chicago. An option has been taken on a service station site in Cleveland. It is believed that the Government may establish such a route, as investigations have been carried on recently.

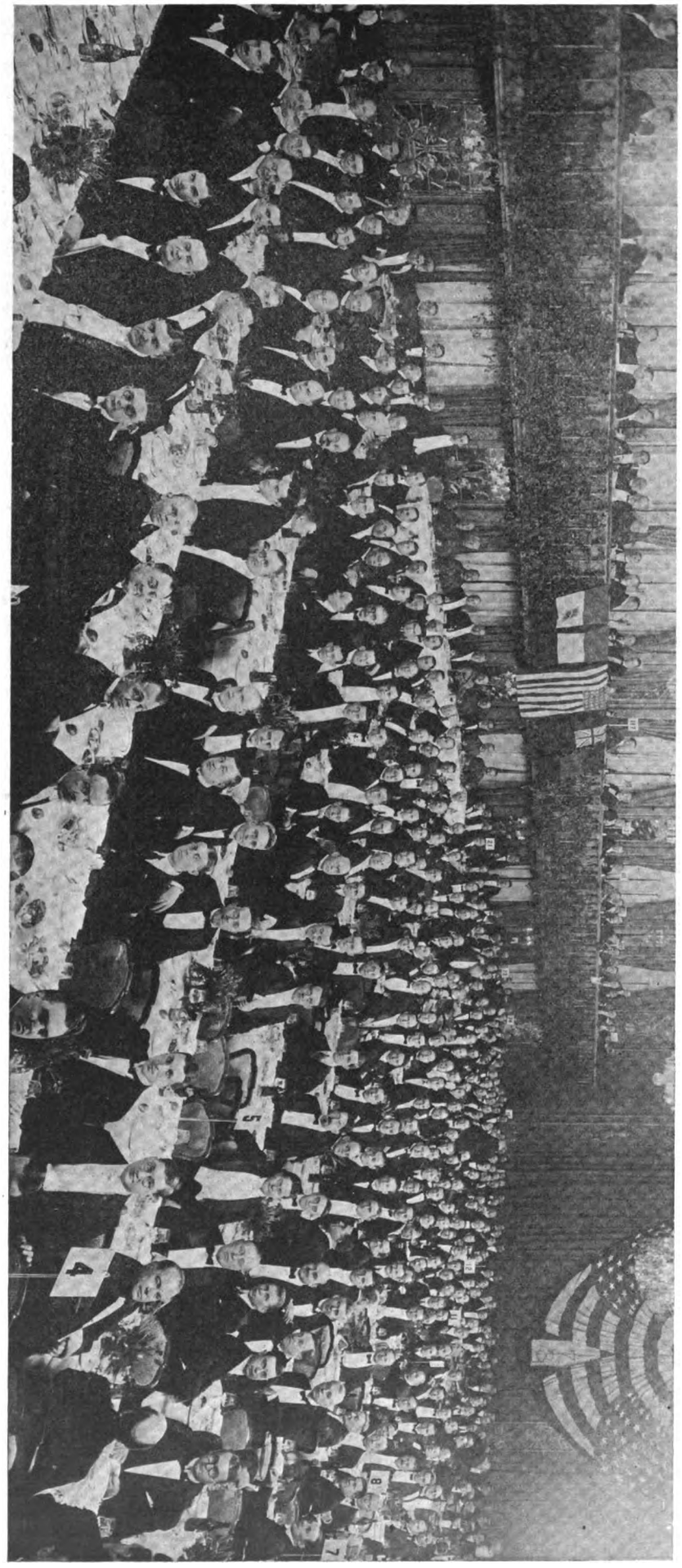
Lansing Firms Allied for War Work

LANSING, MICH., Jan. 14—Eighteen Lansing firms have organized as the Lansing Allied Industries to handle Government work, and have opened an office in the Munsey Building, Washington. Government contracts will be passed from factory to factory until they are completed. The concerns in the new organization follow: Gier Pressed Steel Co., Prudden & Co., Novo Engine Co., Auto Body Co., New Way Motor Co., Dail Steel Products Co., Reo Motor Car Co., Michigan Screw Co., Lansing Stamping & Tool Co., Hugh Lyons & Co., Lansing Foundry Co., Eureka Machine Co., Reliance Engineering Co., Lansing Co., Ideal Engine Co., Olds Motor Works, Duplex Truck Co., and the Lansing Forge Co. George J. Bates, Detroit, has been appointed Washington agent.

Don't Be a Business Slacker

Go to the Chicago Show

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Annual Banquet of the Society of Automotive Engineers which was attended by more than 1100 members and guests

13th Annual Meeting of S. A. E. Completed

More Than 1000 Members Added During Year—Over 1100 Attend Banquet

NEW YORK, Jan. 10—The regular winter session of the Society of Automotive Engineers was held here to-day, at the Engineering Societies' Building.

The program terminated to-night in a banquet at the Hotel Biltmore, which was attended by 1100 members of the society and guests. This is the thirteenth annual meeting of the organization which, during the year, has changed its name, being formerly the Society of Automobile Engineers.

During the year 1917 the membership of the organization grew from 2120 to 3119, this being largely due to the expansion in the field covered by the organization from the automobile line to embrace also the other automotive industries, including airplane, tractor, motor marine, motorcycle and stationary plants employing internal-combustion engines.

The society is in excellent financial condition, having invested during the year in $24,000 worth of Liberty bonds and more than $12,000 in other bonds and securities. Its work along the lines of standardization has been paid for in part by donations of the automobile and accessory trade organizations. The large addition of members has also brought in a substantial financial return.

A notable program was arranged, the morning being given up to routine matters, such as the business meeting, president's address, election of new officers and standards, while the afternoon was taken up by the professional session. The latter was the best attended in the history of the organization, the auditorium of the Engineering Societies' Building being packed to capacity. The program for the professional session was divided into three parts, the first being talks on Reasons Behind the Liberty Aircraft Engine, the second, papers on Reasons Behind the U. S. War Truck Design, and the third, a paper on Fuel for Automotive Apparatus. The speakers were: Col. V. E. Clark, Major J. G. Vincent and H. M. Crane on aircraft; C. T. Myers on the war truck, and Dr. E. W. Dean on fuel. Reports of these talks are given on other pages in this issue.

John Kendrick Bangs was toastmaster of the banquet, the speakers being Major J. G. Vincent, Howard E. Coffin, chairman of the aircraft board; Captain M. E. de Jarny, French Military Mission, and Charles F. Kettering, president-elect S. A. E. Speeches were largely devoted to matters pertaining to the war, and the meeting was made the occasion of demonstrations of a patriotic nature and of friendship for the allied nations who were largely represented by officers of

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the French, British and Italian armies.

George Dunham, in opening the meeting, spoke of the rapid growth of the organization during the past year, and dwelt particularly on the patriotic service rendered to the government by the organization, and which is clearly recognized by the government. He told how the word automotive, coined by some of the members as a part of the name of the new organization to indicate its wide scope, has become a general term which is well recognized. The meetings have been well attended, President Dunham pointed out, particularly at Kansas City and Fremont last summer at the tractor sessions, and also at the summer session in Washington, where it was necessary to hold an overflow meeting because the capacity of the Bureau of Standards was overtaxed.

President Dunham stated that the government appreciated the great work of the S. A. E. in connection with the standardized government trucks, which are in three sizes, and also in the design of the Liberty aircraft engine. This work is going on rapidly, particularly in the stnadardization of airplane parts, many of the latter standards being adopted by the International Standards Board. The government's standard motorcycle has not been completed as yet, but society members are doing important work in connection with this design also. There are now over 125 members of the organization who are commissioned officers.

Two new sections have been formed, one of these at Buffalo and the other at Minneapolis. The journal of the society has grown from a small bulletin to an important record of the activities of the organization in all fields. The headquarters of the society also had to be enlarged.

Reports by the treasurer and by the membership committee showed the society to be in a healthy state in both directions. The surplus for the year amounted to $16,930.96, the society having had an income of $113,227.97 and expenditures of $96,297.01. The membership increased by 1000, as indicated in President Dunham's address. Important revisions regarding the qualifications for membership are being studied by a special committee headed by B. B. Bachman, engineer of the Autocar Co., and will be submitted to the members by mail ballot.

The entire report of the Standards Committee was accepted by the association, and, in addition to the work reported in last week's Automotive Industries, the marine standards were also adopted, as well as those of the Miscellaneous, Tire and Rim and Tractor Divisions.

Another important action taken was to waive the dues of members of the organization who are with the forces in France.

Henry Ford Wants Men

DEARBORN, MICH., Jan. 14—Henry Ford & Son, Inc., is taking on a large number of additional help. Those needed are tool makers, die makers and metal and wood pattern makers.

We Must Do More—Not Less

Go to the Chicago Show

Severe Storm Isolates Detroit

DETROIT, Jan. 14—For two days this city has been isolated by a severe storm. There have been increasing demands for coal, and as a result of the storm most of the supply has been shut off. A majority of the automotive companies are receiving a limited amount. The city's gasoline supply is also very low, due to increased demand, and dealers report only a limited amount on hand. Although the weather is warming up, and railroads are beginning to operate again, the traffic congestion continues bad. Railroad and drive-away outlets have been entirely shut off for the products of automotive factories, due to railroad and weather conditions.

Strom Heads U. S. Ball Bearing

NEW YORK, Jan. 14—At the last meeting of the board of directors of the United States Ball Bearing Mfg. Co. the following officers were elected: W. H. Strom, president and treasurer; E. N. Strom, vice-president; G. A. Strom, secretary. The change in officers was brought about by the recent death of Mr. A. A. Strom, father of the three officers of the company, who during his life was president of the company but who was associated with it only in an advisory capacity. The vacancy in the board caused by the death of Mr. Strom was left open to be filled at the next stockholders' meeting. No actual change in management has taken place, for W. H. Strom retains his position as general manager, which he has occupied for the past 5 years, during which time he also has been an officer of the board. The new officer is G. A. Strom, who has been associated with his father in the Pettibone-Mulliken Co. for several years until a quite recent date, at which time he took over the active management of the old U. S. Ball Bearing plant in Oak Park, which is now operated as a subsidiary plant.

In connection with the change of name of the product from U. S. ball bearings to Strom bearings, it is somewhat of a coincidence that the change of name was publicly announced almost simultaneously with the death of Mr. Strom. It had been decided by the active members of the company that, in commemoration of Mr. Strom's very successful activities in the manufacturing world the name of the product be changed to Strom and one of the last official acts performed by Mr. Strom in his advisory capacity was to sanction the change of name. The capacity of the plant is to be increased.

Western Machine Products Formed

CLEVELAND, Jan. 14—The Western Machine Products Co. has been incorporated for $100,000 and will take over the land and building of the Marvel Accessories Mfg. Co. In addition to the regular line of the old company, a special group of products will be manufactured. L. A. Katz has been elected president.

Keep the Home Fires Burning

(*Continued from page* 10)

they all piled onto the street cars. The motor car is one of the greatest necessities we have; it is a part of our national transportation system; but because we look at it as a case of individual ownership and you think of your neighbor's car, and the car that is owned by the man across the street, and not of cars as owned by our nation collectively, you don't see the importance of them in our national transportation system. But the minute you take all this transportation out and throw the load on the transportation that is left there is a breakdown and *everything goes to pieces.*

"The thought of sentiment that you are expressing is very damaging, Benny. It would take bread and butter away from a lot of people; it would bring about hardship and suffering and starvation; it would take away the means of living of many people who couldn't take any direct part in the war, no matter what happened.

"They are the innocent bystanders. We have a large population of innocent bystanders and they must not be harmed. They can contribute money and moral support when they have it, but if we take it away from them they can't contribute anything else—*they can't even exist.*

"There is a fine fat chance of anyone keeping the home lres burning unless everybody everywhere keeps business going as best he can, gives as much support to as many people as he can and prevents that part of our country that is left behind from going to pieces entirely.

"There is a silver lining that shines through the dark cloud and what we need most is a few more people who can see it. After they have seen it we need a few people who will give it a yank and turn the dark cloud inside out. Yourself and a few more motor car salesmen who don't believe in the business they are in had better go get a job in munitions factories or enlist and go to war and leave this very essential home work to some people who can see why it is a necessity.

"Think again, Benny."

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	...	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1095	1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	29.4	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1375	....	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	33x4	SS	**1465	....	....	....	2165	....	....
DeLuxe	6-3½x5½	29.4	.....	.....	.....	D	3	....	....	....	**1925	....	....	....	....	....	....
APPERSON																	
6-18	6-3½x5	29.4	Remy	Rafld	Bijur	DP	3	130	35x4½	SS	†2200	....	2200	....	....	....	....
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	35x4½	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafld	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1595
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	4950	5250	....
BIDDLE																	
H	4-3½x5½	22.5	E'mann	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West	Stmbg	West	DP	3	118	33x4½	QD	....	1385	....	....	....	....	....
	4-3½x5	22.5	West	Miller	West	DP	3	118	32x4	....	....	....	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	7200	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3⅝x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	725	725	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 {125	35x5 34x4½	SS	2805	....	2805	....	3650	4145	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafld	Wsths	D	3	125	35x4½	SS	†1875	....	1875	....	2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	{117 {122	32x4 34x4	SS	1365	1365	1450	....	1850	2925	....
CHANDLER																	
25	6-3½x5	29.4	Bosch	Rafld	Wsths	DP	3	123	34x4	SS	†1595	....	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	620	620	....	....	1060	....	....
FA-2	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	2195	....	2195	2695	{2895 {2995	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1350	....	....	1995	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	....	{935 {995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	{132 {142	35x5 37x5	....	....	....	....	....	....	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	....	....	....	....	....	....	....
DAVIS																	
H, I, K	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1485	1485	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1785	1785	....	....	....	....
DISPATCH	4-3½x5	22.5	Bosch	Rafld	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....
DIXIE FLYER																	
LS35	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†995	995	....	....	1375	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	795	....	....	1095	....	....	865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	975	975	975*	1375	1375	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3550	3500	3550	....	5180	5250	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K D	Simms	C	3	109	30x3½	C	†745	745	....	1095	1095	1095	855
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3500	3500	3500	....	4600	4650	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QD	3400	Racea bout	3250	..	....	....	....
METZ																	
25	4-3½x4	24	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Conn	Rafld	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	‡1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	....	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
	6-3½x4½	25 3	Heinse	Stmbg	Dyneto	D	3	117	33x4	SS	1195	1195	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	QD	565	‡635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Tltsn	Wagner	DP	3	114	32x3½	SS	....	1195	....	....	....	....	....
6-45	6-3½x4½	25.3	Delco	Rafld	Delco	DD	3	125	34x4	SS	‡1685	....	1685	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†1850	....	1850	2650	2650	....	....
MOORE																	
30-E	4-3½x4½	22.5	Spldf	Schebler	Dyneto	D	3	{106 108	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafld	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-683	6-3½x5	25.3	Delco	Marvel	Deloo	P	3	121	34x4	SS	1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	†1995	†1995	1995	2645	2820	....	....
Twelve	12-2½x4½	39.6	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	†2595	†2595	2595	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	1800	....	.. .
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	‡990	990	...	{1150 {1490	1190	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1467	....	....	....	.. .
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1185	1185	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	Remy	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	112	32x4	SS	‡915	930	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Tltsn	A-Lite	C	3	{104 {106	31x4	C	780	795	†840	....	1240	....	....
85	6-3½x4½	25.3	.....	Tltsn	A-Lite	C	3	116	32x4	....	820	970	....	....	....	....	....
	4-3½x4	16.9	Conn.	.....	A-Lite	D	3	100	30x3½	....	....	....	....	....	....	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	31x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7	}	}	}	}	}	{136	}	}	‡3950	†3950	3950	....	....	5000	....
W-42	6-4 x5½	38 4	Bosch	Zenith	O-M	OM	6	{142	{35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								{136				....	4100	....	....	5650	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	\128	35x5	QD	....	3700	3700	5050	....	5250	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1330	1330	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafld	Remy	D	3	127	35x4½	SS	....	....	1775	2850	....	3230	....

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DOBLE	2-5 x4	....	Own	Doble	Stmbg	Wagner		135	35x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24	Delco	Stewart	N.E.	D	3	114	32x3½	SS	885	885	....	1350	1350	....	....
DORRIS																			
J-C-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	130	36x4½	SS	....	....	....	....	....	....	....
DORT																			
11	4-3½x5	19.6	Conn.	Carter	Wsths	C	3	105	30x3½	QD	865	865	....	1265	1265	....	....
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	116	32x3½	SS	845	845	†845	....	....	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	....	....	....	....	....	....
ELGIN																			
A	6-3½x4½	23.4	Remy	Stmbg	Wagner	DP	3	117	32x4	....	†1095	1095	....	1045	....	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	†1345	1375	1345	....	1685	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly {Kngstn	....	D	2	100	30x3½	rC	345	360	....	560	695	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	{32x4 {33x4½	SS	2050	2050	....	2850	2950	3200	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Radfld	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1055	1055	....	....	....	....	1350
HAL TWELVE																			
21-A	12-2½x5	39.6	....	Stmbg	Wsths	DP	3	135	34x4½	SS	3600	3750	3600	....	4500	5000	....
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	29.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	785	....	....	....	....	....
HARVARD																			
4-30	4-3x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	750	†985	....	....	....	....	....
HAYNES																			
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1595	....	....	2260	....	....
39	6-3½x6	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1725	....	1725	....	2390	....	....
41	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2225	....	2225	....	2890	....	....
HOLLIER																			
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1285	....	....	....	....	....
188	8-3x4½	28.8	A.Kent	Stewart	Splitdf	C	2	116	34x4	SS	†1285	1285	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125	34x4	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1250	1250	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	37x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
26-AB	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	3	125	34x4	SS	....	1675	1675	....	2550	....	....
JORDAN																			
J-60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2750	2500	....
KING																			
EE	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	‡2150	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	.	2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1485	1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1350	1350	....	....	1925	....	....
LOCOMOBILE																			
38Series II	6-4½x5	43.3	Berling	Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
48 Series II	6-4½x5½	48.6	Berling	Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON																			
	.....	....	.....	.....	.....	..	.	{124	....	....	....	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	{120	34x4	SS	†1485	1485	1485	....	....	....	....
PAN-AMERICAN																			
G-5	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1500	....	1650	....	1950	....
J-7	6-3½x5½	29.4	Bosch	Rafid	G & D	P	3	128	34x5	....	....	....	....	....	....	....	....
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	....	....	....
PEERLESS																			
56	8-3½x5	33.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS	†2340	....	2340	2850	2990	3690	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6100	6100	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Tilsn	Delco	DP	3	119	32x4	SS	†1295	1295	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	32x4½	SS	2285	....	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	..	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3⅛x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	1225	1225	....	....	....	....	....
ROAMER																			
C6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2350	....	2175	....	3250	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	2950	....	3250	....	3950	....	....
ROSS																			
	8-3½x5	33.8	....	....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
B-5-R	4-2½x4	12.1	A.Kent	Schebler	Wagner	DD	3	96	30x3	DC	445	....	....	....	....	....	....
S-4	6-2½x4½	19 8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	935	....	1395	....	....	....
SAYERS																			
	6-3½x4½	25.3	Delco	....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1425	....	....	....	....	....	....
G	4-3⅛x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	1250	....	....	....	....	....	....
	6-2½x4½	....	Remy	Marvel	Remy	C	3	112	....	....	1195	....	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	3800	†3800	3800	....	....	4750	....
STANDARD																			
G	8-3½x5	33.8	Splitdf	Zenith	Splitdf	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4x5	....	....	....	....	..	.	130	35x4½	SS	‡2550	2600	2225	....	....	....	....
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1785	1785	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2575	....	2575	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	....	‡1485	1485	1550	1660	1985	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19 6	Remy	Schebler	Wagner	C	3	112	32x3½	SS	....	895	....	....	....	....	1250
EH-6-50	6-3½x5	29.4	Remy	Schebler	Wagner	C	3	119	32x4	SS	....	1295	....	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1695	....	..	....	....	....
STUTZ																			
S	4-4½x5	30.6	Bosch	Stmbg	Remy	C	3	120	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	....	1985	....	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1340	1340	†1340	....	1885	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1890	1940	1940	2790	2790	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	....	Own	L-N	P	4	{124½ {137½	35x5 35x5	U	†5000	....	†5000	6050	6050	6200	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	121	34x4½	SS	....	....	1525	2175	2225	2325	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2000	....	2700	2800	....
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Tltsn	A-Lite	C	3	120	33x4½	SS	†1365	....	1365	....	2045	....	.. .
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2950	2950	3000	3865	4165	4165	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....
WOOD'S																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag		124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "B & Ball" Ball & Ball, "Atzr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "Spldf" Splitdorf, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37½x5½r means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Washington, D. C...	Carnival and Open House Week Automobile Trade Assn. of Washington	...Jan. 11-18
Providence, R. I.....	R. I. Licensed Auto Dealers' Assn. State Armory. Percival S. Clark, Mgr.	...Jan. 11-19
Philadelphia, Pa.....	Seventeenth Annual, Philadelphia Auto Trade Assn., Wanamaker's Garage.	...Jan. 12-19
Rochester, N. Y.....	Tenth Annual, Exposition Park C. A. Simmons, Mgr.	...Jan. 14-19
Milwaukee, Wis.....	Milwaukee Automobile Dealers Inc., Auditorium. First 7 days, passenger cars; last 3 days, commercial cars. Bart J. Ruddle, Mgr.	...Jan. 16-25
New York, N. Y.....	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	...Jan. 19-26
Montreal, Can.....	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	...Jan. 19-26
Cleveland, O.....	Seventeenth Annual, Cleveland Automobile Show Co., Wigmore Coliseum. Fred H. Caley, Mgr.	. .Jan. 19-27
Detroit, Mich.....	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	...Jan. 19-26
Buffalo, N. Y.....	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	...Jan.21-26
Wilmington, Del.....	Wilmington Automobile Show Assn., Hotel Du Pont. H. N. Partington, Mgr.	...Jan. 21-26
Scranton, Pa.....	Scranton Motor Trades Assn., Armory, Hugh B. Andrews, Mgr.	...Jan. 21-26
Portland, Ore.....	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	...Jan. 21-26
Oklahoma City, Ok..	Oklahoma City Automobile Dealers' Assn., 701 No. Broadway. Roy H. Haun, Mgr.	...Jan. 22-26
Mifflintown, Pa.....	Automobile Trade Assn., Valley Stream Auditorium.	...Jan. 22-26
Baltimore, Md.....	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Armory.	...Jan. 22-26
Allentown, Pa.....	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisering, Publicity Mgr.	...Jan. 23-28
York, Pa.....	York County Auto. Dealers' Assn., Tabernacle. T. F. Pfeiffer, Sec.	.....Jan 26-Feb. 3
Bridgeton, N. J.....	Bridgeton Automobile Dealers' Assn.	.....Jan. 26-Feb. 2
Harrisburg, Pa.....	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	....Jan. 26-Feb. 2
Chicago, Ill.....	Eighteenth Annual, Coliseum and Armory. National Automobile Chamber of Commerce.	.....Jan. 26-Feb. 2
Chicago	Salon, Elizabethan Room of Congress Hotel.	.....Jan. 26-Feb. 2
Manchester, N. H...	Academy. Couture Bros.....	Jan. 28-Feb. 2
Greensburg, Pa.....	Westmoreland Automobile Dealers' Association.	....February
Peoria, Ill.....	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland, Mgr.	....February
Indianapolis, Ind.....	Indianapolis Automobile Trade Assn., Diamond Chain Works Bldg. John B. Orman, Mgr.	.....Feb. 25-Mar. 2
Minneapolis, Minn...	Twin Cities Automobile, Truck, Tractor and Industrial Exposition, Minneapolis Auto. Trade Assn. Walter B. Wilmot, Mgr.	.....Feb. 2-9
Brooklyn, N. Y.....	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars..	Feb.23-Mar.2
	Trucks	.....Mar. 5-9
Kalamazoo, Mich....	Kalamazoo Automobile Dealers' Assn., Armory.	.....Feb. 5-9
Bronx, N. Y.....	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	....Feb. 9-16
Binghamton, N. Y...	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.	.....Feb. 5-9
Lancaster, Pa.....	Automobile Trade Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	.....Feb. 6-9
Portland, Ore.....	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	....Feb. 6-13
Kansas City, Mo....	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	...Feb. 11-16
Kansas City, Mo....	Third Annual Tractor, Kansas City Tractor Club.	...Feb.11-16
St. Louis, Mo.....	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	...Feb. 11-16
Toledo, O.....	Toledo Auto Shows Co., Terminal Bldg. H. V. Buelow, Mgr.	...Feb. 11-17
Hartford, Conn.....	Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	...Feb. 16-23
Newark, N. J.....	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	...Feb. 16-23
Albany, N. Y.....	Albany Auto Dealers' Assn., State Armory.	...Feb. 16-23
San Francisco, Cal..	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	...Feb. 16-24
Waterbury, Conn....	United Shows Co.	...Feb. 18-23
Syracuse, N. Y.....	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	...Feb. 18-23
Grand Rapids, Mich..	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	...Feb. 18-23
Duluth, Minn.....	Duluth Auto. Trade Assn. John J. Lane, Mgr.	...Feb. 18-23
Springfield, O.....	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	...Feb. 18-23
Pittsfield, Mass.....	State Guard, State Armory. James J. Callagan, Mgr.	...Feb. 18-23
Nashville, Tenn.....	Nashville Auto Trade Assn., Hippodrome. Henry B. Marks, Mgr.	...Feb. 18-23
Des Moines, Ia.....	Ninth Annual Pessenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet and Dean Schooler, Mgrs.	...Feb. 18-24
So. Bethlehem, Pa...	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	...Feb. 18-27
Cedar Rapids, Ia.....	Cedar Rapids Auto. Trade Assn. Auditorium.	.....March
Quincy, Ill.....	First Annual, Armory. L. B. Bartlett, Mgr.	...Feb. 20-23
Muskegon, Mich.....	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	.....Feb. 25-Mar. 2
Bridgeport, Conn....	Fourth Regiment Conn. Home Guard, State Armory & Casino B. B. Steiber, Mgr.	.....Feb. 25-Mar. 2
Columbus, O.....	Columbus Auto Show Co., W. W. Freeman, Mgr.	.....Feb. 27-Mar. 2
Boston, Mass.....	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	.....Feb. 27-Mar. 6
Omaha, Neb.....	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	.....Feb. 23-Mar. 2
Pittsburgh, Pa.....	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	.....Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell. Mgr.	.....Mar. 2-9
Clinton, Ia.....	Clinton Automobile Dealers' Ass'n, Coliseum.	.....Mar. 6-9
St. Joseph	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	.....Mar. 6-9
Watertown, N. Y....	Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.	.....Mar. 6-9
Green Bay, Wis.....	Brown County Automobile Trade Assn.	....Mar. 8-11
Great Falls, Mont....	Montana Automobile Distributers Assn., Lexington Garage. A. J. Breitenstein, Mgr.	...Mar. 15-20
San Francisco, Cal..	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	...Mar. 19-24
Houlton, Me.....	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	...Mar. 20-22
Trenton, N. J.....	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	...Mar. 20-23
Stockton, Cal.....	San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	....Apr. 9-13

Conventions

New York.....	World's Salesmanship Congress, Third Annual.	...Jan. 16-20
Montreal, Can.....	Convention of all men Interested in the Automobile Industry in Eastern Canada.	...Jan. 22-24
Chicago, Ill.....	Annual Convention, Garage Owners' Assn. of Ill., Green Room, Congress Hotel.	...Jan. 29-31
Richmond, Va.....	Richmond Automobile Dealers' Association, First Regimental Armory. Henry B. Marks, Mgr.	...Jan. 21-26

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Bergougnan Tires

In France where they have been manufactured for the past twenty years, these tires stand absolutely unsurpassed. Once they become known here they will enjoy a similar reputation. We could employ a lot of adjectives. We would rather pin our faith on performance.

Exaggerated claims and statements more sensational than truthful are essential in advertising products that have no real merit—articles for which a fictitious demand must be created. But the advertiser of tried products of established value need not stoop to such methods.

We tell you that BERGOUGNAN tires (formerly sold under the name of GAULOIS tires) frequently render 8000 miles. We sell them under a guarantee of 5000 miles MINIMUM. There is really nothing to be added, except that if they are good tires to buy from the car-owner's point of view, they are good tires to sell from the dealer's point of view.

We can perhaps give you the exclusive rights to sell BERGOUGNAN tires in your territory. Write for conditions. You will find them reasonable. The margin of profit is attractive.

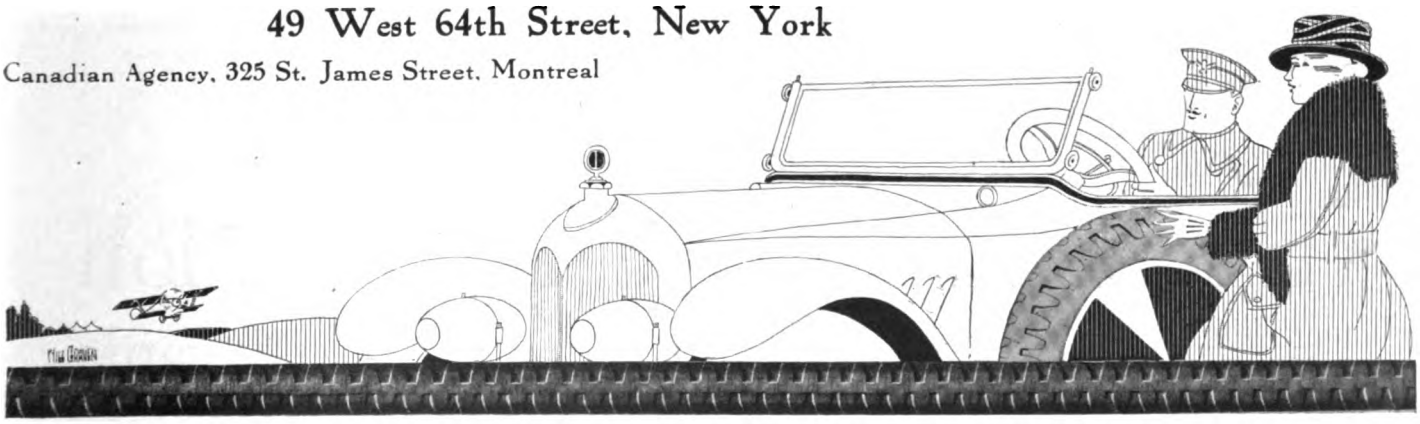
(*Pronounced BEAR-GOO-NIAN*)



BERGOUGNAN TIRE CORPORATION

49 West 64th Street, New York

Canadian Agency, 325 St. James Street, Montreal



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"There doubtless are other good bearing bronzes, but I *know* Non-Gran is good and I *know* Non-Gran is uniform."

The man and engineer who spoke those words is known to every Automotive Engineer not only of this Country but of the entire World. You know him, as does everyone else, as easily one of the first five Automotive Engineers of America. In those few words hasn't this man expressed the majority opinion of the entire American Automotive Industry?

HIGH SPEED
NON-GRAN
BEARING BRONZE

American Bronze Corporation

Berwyn Pennsylvania

When writing advertisers please mention Motor World—It identifies you

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Mr. Carlisle Found That a Single Strand of Carlisle Cord Supported 235 pounds of Rough Iron

Mr. Carlisle sought the biggest and toughest cord that could possibly be used in the carcass of a pneumatic tire.

After many years of labor, during which he built tire after tire of every conceivable kind and size of cord, he one day discovered that it was actually possible to introduce a rugged cotton rope into a tire.

In his laboratory tests he found that just a single strand of this rope would lift a weight of 235 pounds.

Then he conceived the idea of building the carcass in unbroken strands—without breaking or hooking or cutting the rope. But this task was by no means easy. New machines had to be devised for no existing machines could construct a tire carcass in such an un-heard-of manner.

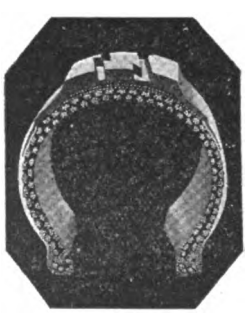
Finally, with the new machine finished, he was surprised at the success of his work. For that machine, he found, was just about four times as efficient as any other tire machine. It built tire carcasses with four times the speed and the cord (highly important) was under perfectly even tension.

Now, if Mr. Carlisle was surprised at the efficiency of his machine, he was amazed at the performance of the tire. It was resilient to a new degree, and travelled 3000 to 6000 miles farther than the best mileage figures shown by other tires.

Dealers, on examining the Carlisle Cord Tire, will be astonished; for it is different from anything ever before made of cotton and rubber.

If interested in introducing this tire in your city, we suggest that you make application now. Otherwise your competitor may get the appointment while you hesitate.

CARLISLE CORD TIRES



CARLISLE CORD TIRE CO., 250 WEST 54th STREET, NEW YORK CITY. FACTORY, ANDOVER, MASS.

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A Record for Service

This new Allen **does** provide a superior type of service. Allen records could only be made by a car of real stamina.

"Perfect Score," Kansas City Endurance Run—Remarkable ascent of Pike's Peak—10,000-mile test trip in many parts of America.

These recent trials were imposed on this new Model 41 Allen.

The high structural excellence was proven—no replacements were needed—nothing was worn or impaired.

Truly good looks glorifies the utility, economy and comfort.

This Allen comes close to the ideal of the Allen brothers:

As fine, as serviceable, as handsome an automobile as can be built at a moderate price.

See the Allen at the Shows, at any Allen dealers, or ask for the new catalog and sectional chart.

This car has a really wonderful motor—flexible, powerful, silent and smooth. It combines four cylinder economy with dependable service.

The body is hung on long, underslung springs—an ideal suspension.

Even more noteworthy is the double coil spring assembly in the seat cushions. This provides gentle, luxurious action whether passengers are light or heavy—a really extradordinary accomplishment.

Other niceties in design include spiral cut gears in rear axle—S. K. F. bearings and transmission—Borg & Beck dry plate clutch—compact and convenient rotary electric control on steering column—and many other details of high merit.

Price $1095
F.O.B. Factory
Subject to change without notice

THE ALLEN MOTOR COMPANY, FOSTORIA, OHIO

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Prevents Frozen Radiators



Does Not Evaporate

JOHNSON'S FREEZE-PROOF

EVERY car that goes past your place of business this winter —every one in service all over the country where winter means cold—has something in the radiator to keep the water from freezing. This winter, instead of alcohol and glycerine, automobile owners are using Johnson's Freeze-Proof because it

Costs Less and Lasts Longer

Johnson's Freeze-Proof does not evaporate with water, so one application is sufficient for the entire winter unless the solution is lost through the leakage. Johnson's Freeze-Proof has been tested from every angle. Over a half-million packages have already been sold and are giving universal satisfaction.



It is Easy to Sell

All you have to do is display Johnson's Freeze-Proof and it will sell itself. It is attractively put up—it is easy to handle—no chance of loss through evaporation or leakage—and all jobbers have it so you can easily make your purchase.

Order Johnson's Freeze-Proof now, for five million motor cars that need it. Get that business with the profits that belong to you.

Johnson's Freeze-Proof is a powder supplied in convenient package form. Retail price $1.50. One package protects Fords to 5° below zero. Two packages protect large cars to 5° below zero and three packages to 20° below zero.

Extensively Advertised

Johnson's Freeze-Proof is by far the most extensively advertised anti-freeze preparation on the market today. This not only sells the product, but establishes confidence in it and overcomes the old fashioned prejudice against anti freeze preparations. **S. C. JOHNSON & SON, Dept. MW, RACINE, WIS.**

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Increases Power



Saves Gasoline

JOHNSON'S CARBON REMOVER

The New Way

THE old-fashioned way of burning out carbon once a season is gone for good. The new way—with **JOHNSON'S CARBON REMOVER**—gives better results without lay-up, loss of time, or inconvenience. You make bigger profits in a year selling Johnson's Carbon Remover over the counter, than you did burning out carbon from choked-up motors by an obsolete and expensive method.

Two Million Cans Sold Last Year

Last year we sold two million cans of Johnson's Carbon Remover with no dissatisfaction whatever. During 1918 we expect to sell ten million cans. This means tremendous profits to the live dealers who handle and recommend it. Stock now and get your share.



Nationally Advertised

Johnson's Carbon Remover will be advertised in all the motor papers, magazines and weeklies—Saturday Evening Post, Literary Digest, Christian Herald, Outlook, Independent, National Geographic, McClure's Metropolitan, World's Work, etc., etc.

Conserves Gasoline

Do your bit and recommend Johnson's Carbon Remover to conserve the gasoline for Government use. Motorists should use Johnson's Carbon Remover every 500 or 1,000 miles to keep their engines clean and sweet—full of "pep"—and reduce their gasoline and oil consumption to the minimum. If you haven't it in stock, order it today from your jobber.

Quarts	$1.75
Pints	1.00
Half-pints	.65

Liberal discount to dealers.

S. C. JOHNSON & SON, Dept. MW RACINE, WIS.

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Mends Leaky Radiators



No Tools Required

JOHNSON'S RADIATOR CEMENT

Liquid

A NEW and efficient way of mending leaky radiators is with Johnson's Radiator Cement. It is quicker, more economical and more satisfactory than any other method on the market.

Finds Every Leak

Johnson's Radiator Cement finds every leak. No matter what part of the radiator, water jacket, or connections it is in, seal it up strongly from the inside, making it absolutely water tight. It does not clog the radiator tubes and does no injury whatsoever.

A Big Seller

75% of car owners have been seeking a good preparation for mending leaky radiators. Johnsons radiator cement is being advertised so extensively that it is going to gain the confidence of these owners and they will demand it. Can you afford to overlook this business?

All Jobbers have it so you can easily make your purchases.

Liberal Discounts to Dealers

Johnson's Radiator Cement comes in Liquid form and is put up in convenient cans retailing at

Pints	$1.00
Half-pints	.65

allowing dealers a liberal discount.

Full directions for using are printed on every can.
Order from your jobber today and share in the profits that belong to you.

S. C. JOHNSON & SON, Dept. MW RACINE, WIS.



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Preserves the Finish



Keeps Cars New

JOHNSON'S PREPARED WAX

Liquid and Paste

JOHNSON'S Prepared Wax is the best polish for automobile bodies, hoods and fenders. It sheds water and makes a "wash" last twice as long. For twenty-five years it has been used by housewives all over the country for polishing their finest furniture—pianos, etc. These people have no hesitancy in using it upon their cars. It is attractively put up—the price is right—is extensively advertised—and claims the prestige of having given twenty-five years' satisfaction.

Johnson's Prepared Wax is put up in both liquid and paste form. Some people prefer the liquid and others prefer the paste. The Liquid Wax has the advantage of polishing easier.



Liquid Wax		*Paste Wax*	
Quarts	$1.40	No. 1 size (1 pt.)	$ .70
Pints	.75	Auto Size (5 oz.)	.35
Half-Pints	.50		

Johnson's Cleaner

is the twin of Johnson's Prepared Wax. It is for removing spots, stains, discolorations, etc., and putting the finish in perfect condition for the Wax polish.

Auto Size (8 oz.) ..... $ .35

Also put up in larger packages for garage use.

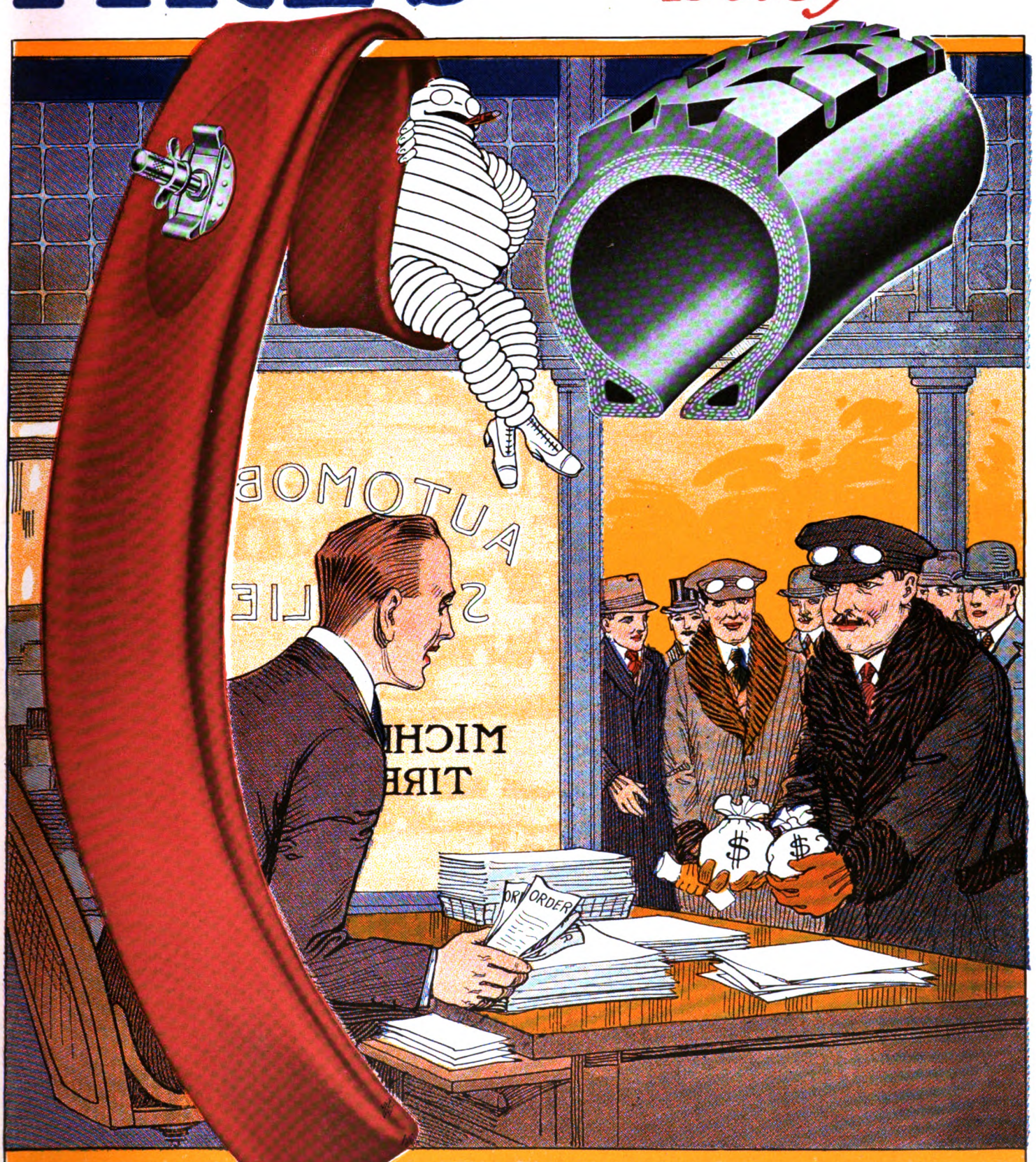
In planning your stock for Spring be sure to figure on a good supply of Johnson's Auto Products. They have all been tried and every one is bound to give satisfaction. They net the dealer a nice margin of profit and they are all fast sellers. The **JOHNSON LINE** includes the following:

JOHNSON'S PREPARED WAX (liquid and paste)	JOHNSON'S CLEANER
JOHNSON'S CARBON REMOVER	JOHNSON'S BLACK-LAC
JOHNSON'S AUTO-LAK	JOHNSON'S STOP-SQUEAK OIL
JOHNSON'S FREEZE-PROOF	JOHNSON'S RADIATOR CEMENT

For further information write S. C. JOHNSON & SON, Dept. MW, RACINE, WIS.

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MICHELIN TIRES make dull seasons busy



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Talks to the

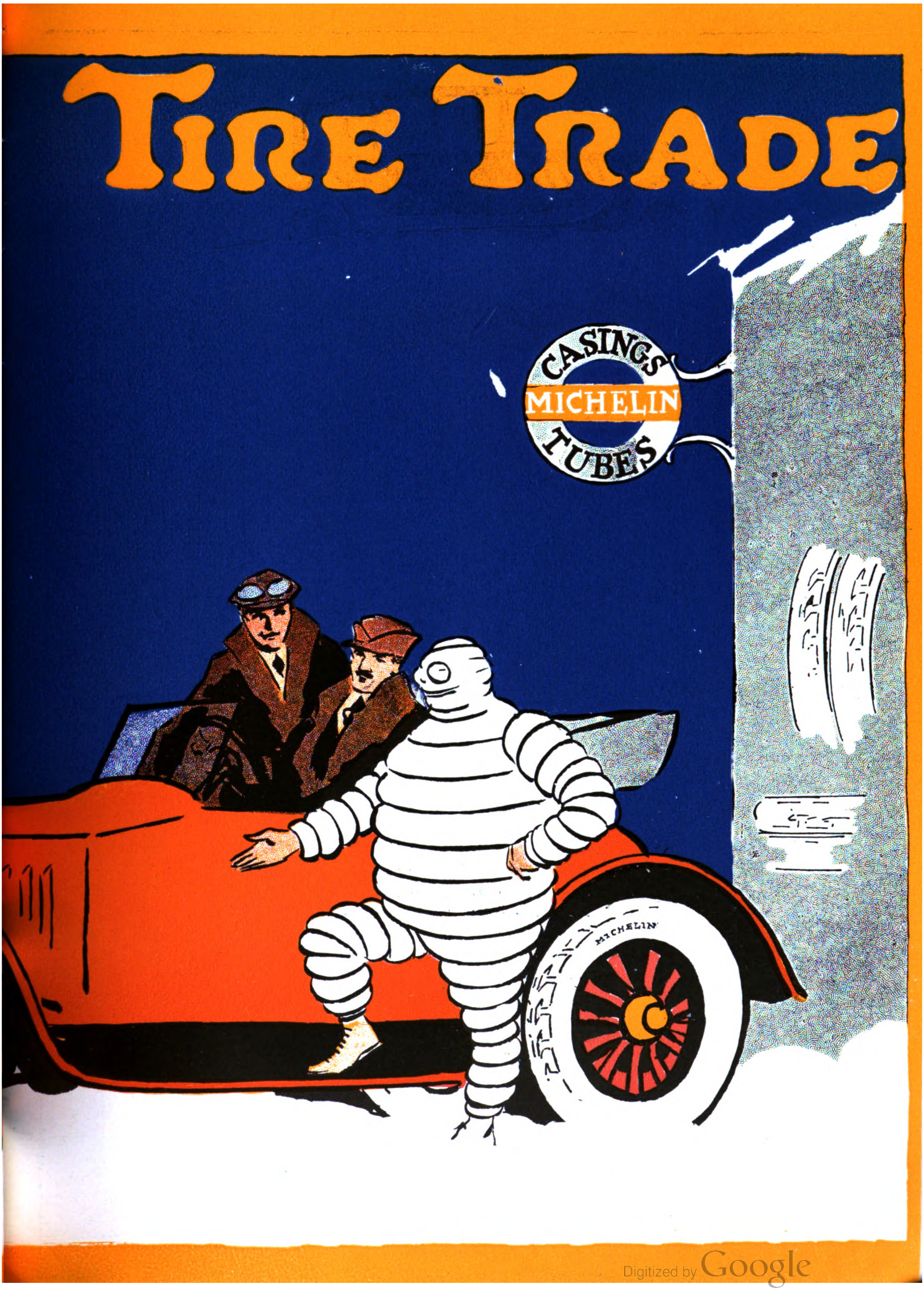
Number 7

IN the winter months when other dealers are dull Michelin dealers are busy as ever, for Michelin is a Universal tire, a great year-round money-maker.

Read why—



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WINTER is the time when non-skid tires are most necessary; front as well as rear wheels should then be equipped with non-skids.

But many other non-skid tires are not suited for use on front wheels because their sharp projections make steering difficult.

On the other hand the Michelin Universal Non-Skid can be used as satisfactorily on front wheels as on rear, because its broad flat tread makes steering as easy as when plain treads are used, and yet it is a most effective non-skid, as all users know.

Write us today for the details of the 1918 Michelin proposition—one of the best ever offered the trade.

Michelin Tire Company
Milltown, N. J.

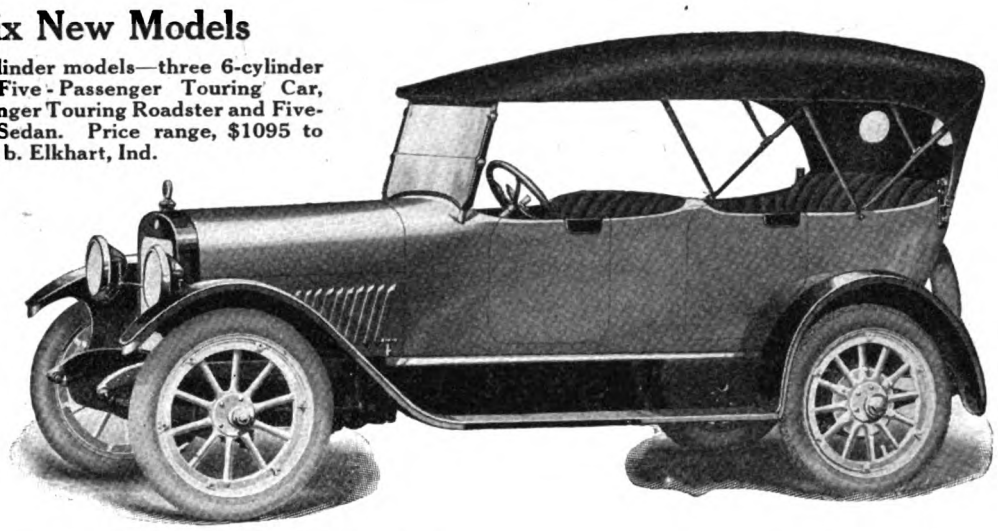


MICHELIN
HIGHEST Quality

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Six New Models

Three 4-cylinder models—three 6-cylinder models — Five-Passenger Touring Car, Four-Passenger Touring Roadster and Five-Passenger Sedan. Price range, $1095 to $1795, f. o. b. Elkhart, Ind.



Stylish and Roomy with fine driving qualities

ELCAR

Refined, modern, graceful lines. Painstaking body construction. Exceptionally high class paint work. The new Elcar models have CHARACTER. They give you all the style, power, speed and endurance you can desire in a car.

Full regard has been taken for both comfort and utility. The body construction provides generous room for the occupants—permits a natural sitting position. This, in addition to exceptionally easy springs and deep upholstery, insures ease and comfort on long trips.

It's a pleasure to drive the Elcar. It's responsive—easy to handle in the crowded streets. Has the stamina for long, hard trips—and built-in quality that insures good service for years to come. Upkeep and gasoline expense run very low with the Elcar. It "looks" quality and gives quality service because the *value* is put into it. It is made with the same care that we used to put into our models selling up to $3,000.00. Seeing is believing. Study the specifications in our catalog—then see the Elcar. It will be at the motor car shows. It is on display with Elcar dealers. Write and we will tell you your nearest dealer's name.

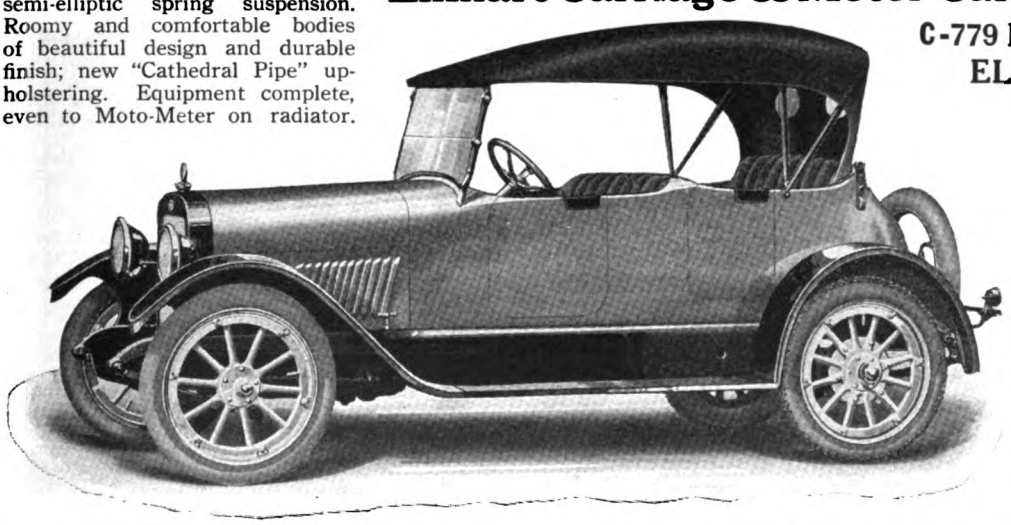
A Few 1918 Elcar Specifications

Four-cylinder models, 37½ horse power at 2100 r. p. m. Six-cylinder models, 40 horse power at 2100 r. p. m. Two unit electrical system. Long wheel base, 116 inches; road clearance 10½ inches. Full floating rear axle with spiral bevel driving gears. Timken Roller Bearings front and rear. Double universal drive; tubular propeller shaft. A wonderfully easy riding, semi-elliptic spring suspension. Roomy and comfortable bodies of beautiful design and durable finish; new "Cathedral Pipe" upholstering. Equipment complete, even to Moto-Meter on radiator.

Catalog on Request All the six new models are pictured and described in the new catalog—gladly mailed to all interested.

Elkhart Carriage & Motor Car Company

C-779 Beardsley Ave.
ELKHART, IND.



Dealers

Look at the value—look at the price—then get in touch quick if you are interested. Our increased production will enable us to accommodate a few more live dealers in picked territories.

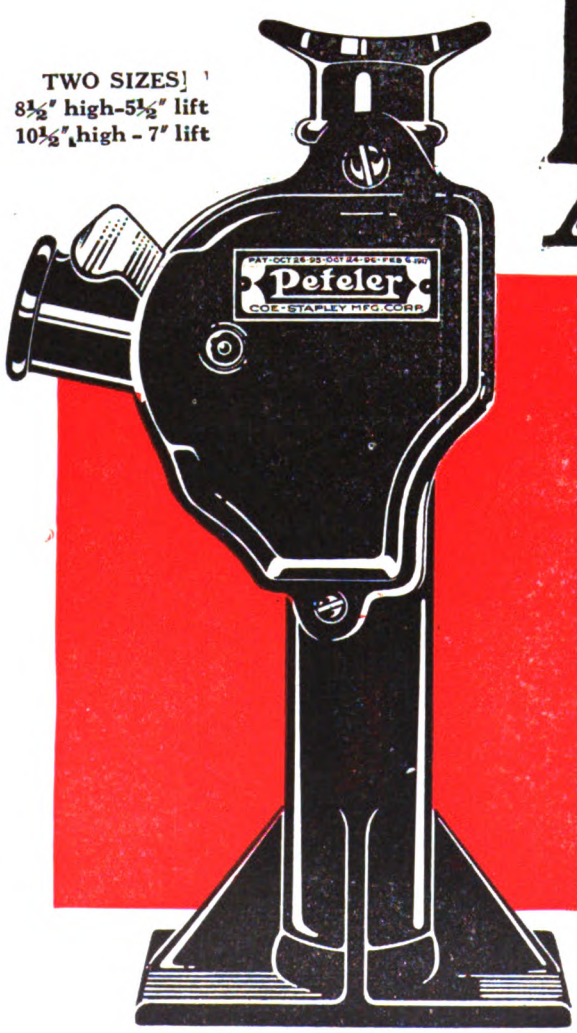
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COE-STAPLEY

$6 for the best Jack in the World

Peteler AUTO JACK

TWO SIZES
8½" high-5½" lift
10½" high - 7" lift



The previous model of the Peteler Jack was considered the best, and it had a tremendous sale—but this model, the new Peteler Jack, is better—and better by a big, wide margin than any other jack ever built.

Consider its utility—there is a long telescoping handle which, together with the jack, occupies very little room in the tool box.

By means of the long handle it can be shoved to any point under the car, the car raised, then lowered and the jack withdrawn—all with the operator standing upright.

It has a short stroke so that the overhang of the car in any case cannot interfere with the up and down movement of the handle.

The lifting action is easy and quick—it goes up ⅜" to the stroke, which is far faster than other jacks.

There is no danger point—it raises to the limit of the length of the lifting bar without possibility of failure.

It lowers with the same facility—a turn of the handle operates a lever which reverses the action and—the car comes down step by step as it went up. When relieved of the load, and only then, a slight lift of the handle lets the lifting bar drop the remaining distance into the jack.

For right-off-the-bat utility, can you conceive of a better jack?

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Manufacturing Corporation

Now then—

You dealers could sell the Peteler Auto Jack on appearance alone if you wanted to—for it's the most distinctive appearing, best proportioned, finest finished, staunchest looking jack you ever saw.

But add to that its world-beating utility, its surpassing power, its strength and endurance and you have a proposition full of possibilities for profit—because its features make the Peteler Jack easily salable to the great majority of the car owners of your locality.

The Peteler Auto Jack is almost as simple as your pocket knife. There's nothing complicated in its makeup—just a few working parts made of the finest materials for their purpose. A lifting bar of cold rolled high carbon steel, pawls of tool steel, plates of pressed steel and case of malleable iron—all fool proof and trouble proof and capable of a lifetime of wear.

The Peteler Jack has a capacity of 3000 lbs., 1000 lbs. more than it could possibly be called upon to lift—a half ton of over-strength. Furthermore, it is a non-skid jack—under any condition of load or road it can't slip.

In every respect the Peteler Jack justifies its title—"The Best Jack in the World"—and as such it should be on your counter, on your shelf, in your window. The price, $6, allows you a mighty liberal profit.

Sold through jobbers only

Write your jobber today

COE-STAPLEY MFG. CORP.

Executive Offices:
115 Broadway, New York

Factories:
Bridgeport, Conn., and Brooklyn, N. Y.

JOBBERS

Mr. A. Peteler will be in Chicago during the week of the Chicago Show (Jan. 26 to Feb. 3) and will be pleased to demonstrate by appointment. Write New York office.

Take advantage of this: You and we will save time by making selling arrangements early.

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The Tire That's Easy To Sell!

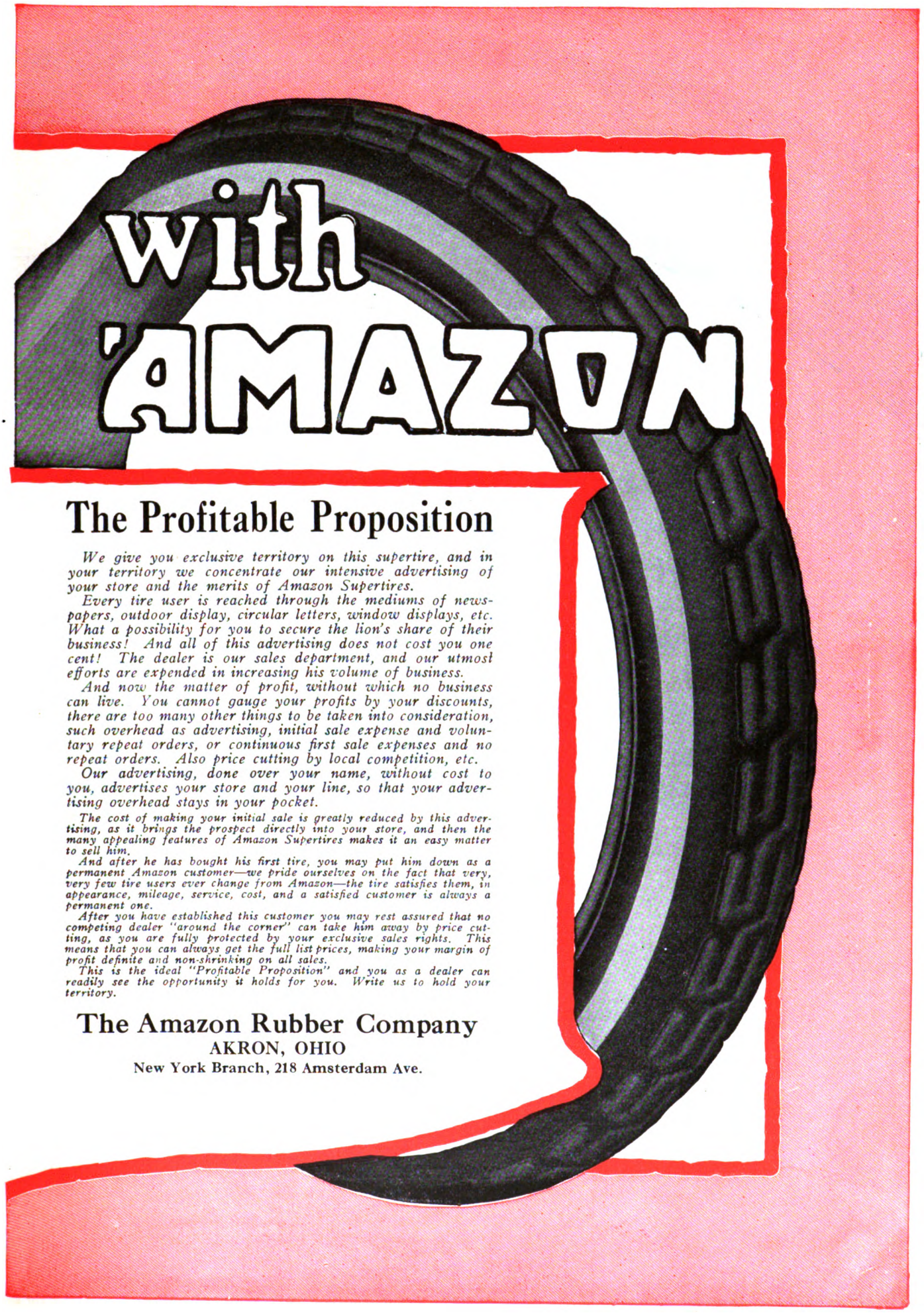
Why are Amazon Supertires so easy to sell? Take, for instance, its reinforced carcass, extra side-wall breaker strips, ***three breaker strips instead of one!***

This for protection against blowouts. Just one example of exclusive superiority—there are many more. Our Indianapolis connection says: "Amazon Supertires have a style and distinctiveness that appeal to car owners—the fine appearance, with the reinforced construction makes the tire an easy seller." (They anticipate a volume of one-quarter million dollars on Amazon in 1918.)

And the tire stands up—the reinforced carcass and the carefully compounded tread are absolute assurance of this.

But listen to what our distributors say: "The tread on your Amazon is indeed wonderful." "They are standing up wonderfully well, and are giving far better service than any fabric tire ever used on that run." (These were used on heavy busses running over Arizona's rocky trails.) And again from Utah: "Big tires doing wonderfully; running 16,000 and good for two or three more on Murray Laundry trucks." As for the small sizes, another dealer writes: "The Ford sizes give better satisfaction than any other tires we have seen." Philadelphia says: "We have been selling Amazon tires for several months and have placed them on cars where they received a severe test and have given unusual satisfaction. We have not been called upon as yet to make any adjustments." An executive of a leading automobile factory says: "I have driven my car nearly five thousand miles and the tires look as though they have been on the car but a week or so!" Amazon Tires are standing up everywhere, and they'll stand up for you!

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The Profitable Proposition

We give you exclusive territory on this supertire, and in your territory we concentrate our intensive advertising of your store and the merits of Amazon Supertires.

Every tire user is reached through the mediums of newspapers, outdoor display, circular letters, window displays, etc. What a possibility for you to secure the lion's share of their business! And all of this advertising does not cost you one cent! The dealer is our sales department, and our utmost efforts are expended in increasing his volume of business.

And now the matter of profit, without which no business can live. You cannot gauge your profits by your discounts, there are too many other things to be taken into consideration, such overhead as advertising, initial sale expense and voluntary repeat orders, or continuous first sale expenses and no repeat orders. Also price cutting by local competition, etc.

Our advertising, done over your name, without cost to you, advertises your store and your line, so that your advertising overhead stays in your pocket.

The cost of making your initial sale is greatly reduced by this advertising, as it brings the prospect directly into your store, and then the many appealing features of Amazon Supertires makes it an easy matter to sell him.

And after he has bought his first tire, you may put him down as a permanent Amazon customer—we pride ourselves on the fact that very, very few tire users ever change from Amazon—the tire satisfies them, in appearance, mileage, service, cost, and a satisfied customer is always a permanent one.

After you have established this customer you may rest assured that no competing dealer "around the corner" can take him away by price cutting, as you are fully protected by your exclusive sales rights. This means that you can always get the full list prices, making your margin of profit definite and non-shrinking on all sales.

This is the ideal "Profitable Proposition" and you as a dealer can readily see the opportunity it holds for you. Write us to hold your territory.

The Amazon Rubber Company
AKRON, OHIO
New York Branch, 218 Amsterdam Ave.

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BEFORE introducing Stanwal we submitted it to the most severe and unremitting tests. A special testing machine was designed in our own laboratories and was so constructed as to determine with absolute exactness every important factor of the brake lining tested on it.

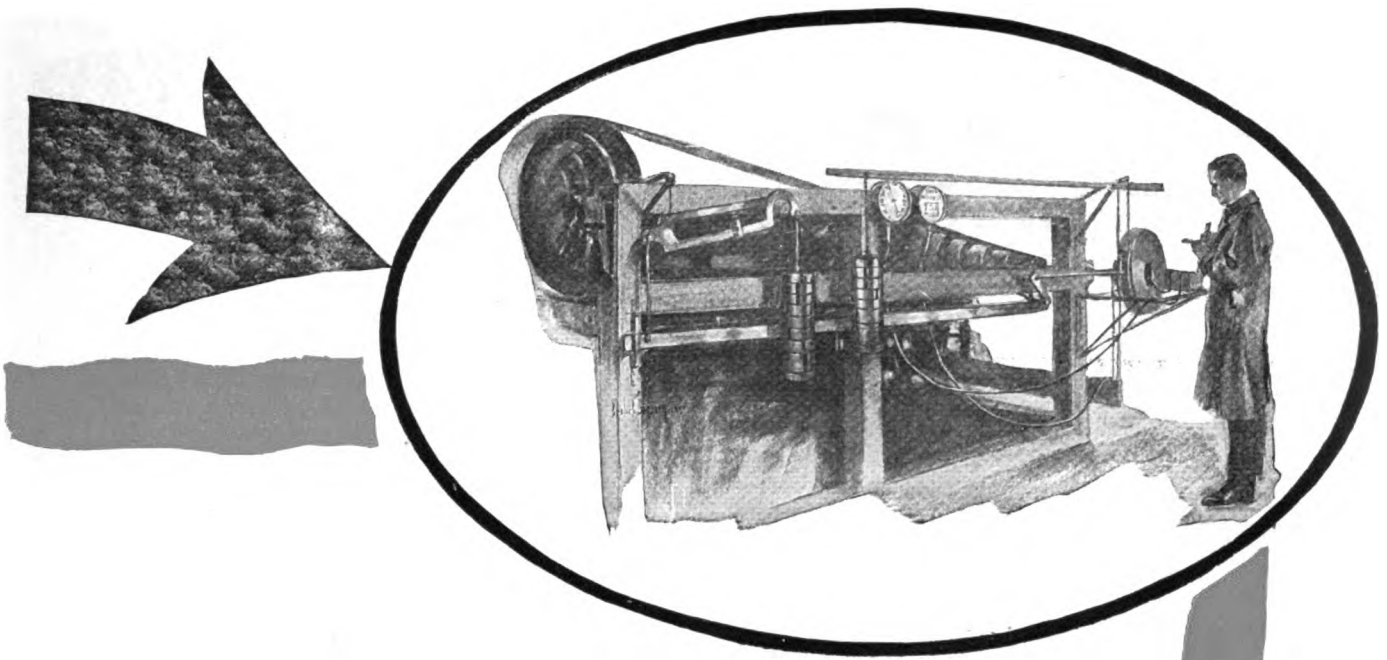
STANWAL
BRAKE LINING AND CLUTCH FACINGS

Stanwal has also been tested and proved in the laboratories of the Massachusetts Institute of Technology and in the testing departments of a number of automobile manufacturers.

The consensus of all reports shows Stanwal to have a uniform coefficient of friction of 40 per cent as against 37 per cent in the average brake lining material.

When writing advertisers please mention Motor World—It identifies you

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IN the tests to determine wear resistance, as in the friction tests, all the different brake linings were submitted to exactly the same conditions of braking service.

After twenty hours of constant application under a pressure of 50 pounds to the square inch, and at a temperature of 212 degrees, Stanwal showed a percentage of wear of 17 9/10, while its nearest competitor showed 33 4/10 per cent wear.

Due to the heat-resisting quality of the fabric and the absence of any combustible substances in its make-up, Stanwal suffered no injurious effects from the heat generated in the brakes.

Our descriptive booklet, "Safety at a Saving," will be mailed upon request.

STANDARD WOVEN FABRIC CO.

WALPOLE, MASS.

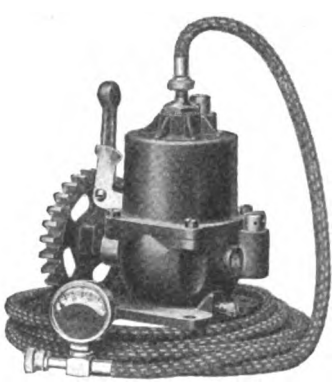
New York Branch and Export Office, 1834 Broadway
Chicago Branch Office, 1430 Michigan Avenue
Detroit Branch Office, 306 New Telegraph Building
Philadelphia Branch Office, 406 Colonial Trust Co. Building

Other Stanwal Products

Multibestos Brake Lining and Clutch Facing
Stanwal Friction and Insulating Tapes
Splicing Compounds
Cable and Specification Tapes
Tire Tapes
Moulded Rubber Goods
Stanwal Matting
Stanwal Rubber Heels
Stanwal Fiber Soles

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Notice to every car manufacturer on the face of the globe



TO every car manufacturer we announce the perfection of the ***Cassco Pump***—a pump that requires no attention after it is installed, yet gives 100% service for the lifetime of the car.

You know full well that the average motorist rarely thinks of giving his tire pump any attention. He forgets that the tire pump is a little machine in itself which requires oil and grease just as much as the motor.

The safe and sure motorist will give his pump a little oil every time he lubricates the motor, with the result that he soon has his pump flooded with oil. When he has occasion to pump the tires, he will pump a stream of oil instead of good, clean, cool air, and so his tires are absolutely ruined, for oil is a deadly enemy to rubber.

Then, again, we have the motorist who pays attention to only the motor itself and forgets that his pump also needs to be fed. As a result, his pump is soon out of commission, and when he attempts to use it, he literally tears it all to pieces.

Our engineers in designing the ***Cassco*** have made a pump that will eliminate all trouble, work and annoyance for the motorist. If the ***Cassco*** is installed on the transmission, the motorist can entirely forget it is there until he has occasion to use it for pumping his tires. If installed on the motor itself, he need never touch it except when having the car overhauled. He can feel sure that his pump will always be lubricated. Furthermore, a new type of skirt which absolutely prevents the oil from getting into the tube, assures him that oil will never be pumped into his tires.

Needless to say, such a distinct step forward in the designing of engine driven tire pumps will be exhibited at the New York and Chicago Automobile Shows. Booths D102 to D106 will be headquarters for the ***Cassco*** at New York; booths 165 to 173, inclusive, in the Coliseum at Chicago.

It will pay every car manufacturer in America to get a ***Cassco*** demonstration at either one of the shows, and we earnestly request that you let us supply you with full details about the ***Cassco.***

SALES DEPARTMENT

Edward A. Cassidy Co., Inc.

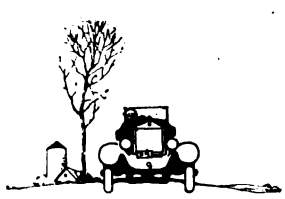
Madison Avenue & Fortieth St.

NEW YORK

MANUFACTURERS

West Side Foundry Company

TROY, N. Y.



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MARMON 34



Marmon Dominance

Today, And In The Days To Come

WHEN, in any industry, the law of diminishing returns sets in by whatever reason, the real leader quickly emerges from the rest. As for the automobile field, you have seen the Marmon pass through the back-fire of wartime, unscathed. Every day you meet this car in greater numbers in the motor traffic of America, overtaking, as it has, everything except demand.

Meanwhile, the Marmon has added more vital discoveries to the lore of motor car construction than any other car of the past decade.

And so, when peace shall at length remove the physical limitations to Marmon production and distribution, you may safely expect to see this car wield the influence overseas that it exerts at home.

On the following page—a few of the reasons why.

136-Inch Wheelbase—1100 Pounds Lighter

Chicago Automobile Show
Coliseum

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MARMON 34

Advanced Engineering

THE car through which the world has received the much-wanted combinations not thought feasible prior to this car's introduction—a half-ton lighter weight, yet unexcelled roadability and riding ease; long wheelbase, yet short turning radius; deep, wide seats, yet exceptionally low body; great speed and power, yet small fuel and tire consumption.

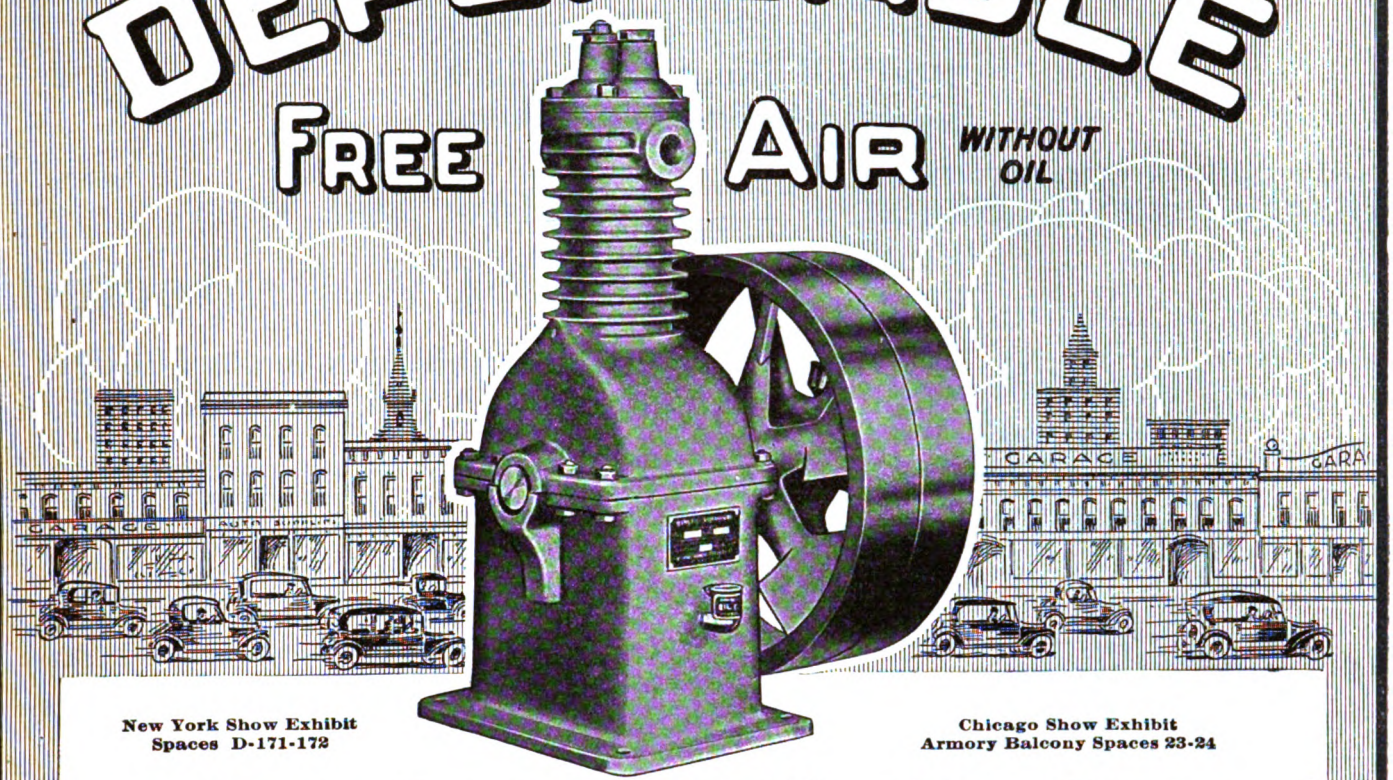
And as for the dealers, the Marmon has given them ideal combinations too—higher average sales with lower sales expense; more gross business with less cost for service; an expanded fine car market with a permanent future.

Marmon sales records in small towns, small cities, and metropolitan centers, substantiate these facts. They are open to the inspection of interested dealers.

NORDYKE & MARMON COMPANY
Established 1851 : INDIANAPOLIS

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DEPENDABLE FREE AIR WITHOUT OIL



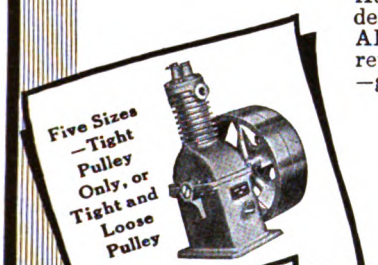
New York Show Exhibit
Spaces D-171-172

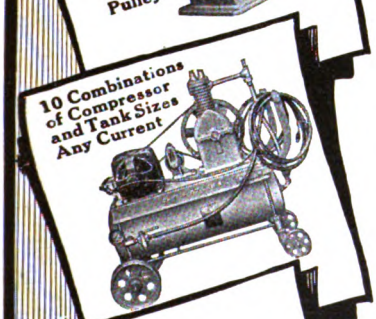
Chicago Show Exhibit
Armory Balcony Spaces 23-24

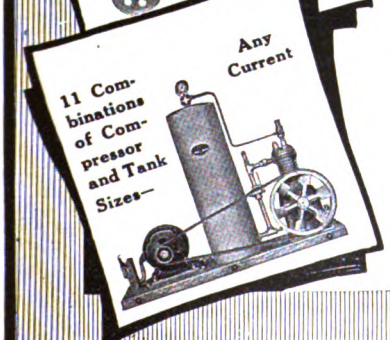
Better Service Brings You More Trade

Auto owners have awakened to the fact that all Free Air Service is not alike. They are demanding PURE AIR for their tires because they have learned that oil rots tires and that AIR FREE FROM OIL means less blowouts, fewer punctures, greater tire mileage, less repairs and a great saving in up-keep every month. Cater to the demands of auto owners —give them what they want. Make your place the most popular in town by furnishing

CURTIS AIR
FREE FROM OIL







Curtis Compressors are the result of 25 years experience in the manufacture of high grade pneumatic machinery. They are reliable, dependable, require practically no attention, are economical to operate, guaranteed to stand up under the severest strains of hard usage and furnish a continuous supply of cool, pure, clean air. While others claim to furnish air free from oil, Curtis is the only Garage Air Compressor with the controlled splash oil system—**our own exclusive patented device** which prevents flooding the cylinder with more oil than it needs or can use—and eliminates all danger of forcing oil into the air line. Curtis Air is pure air—free from impurities—free from oil—the kind of air that makes tires last longer and pleases every patron.

Curtis Compressors Pay For Themselves

They build business—hold your old trade—bring new patrons to your door—and by the superiority of your Free Air Service, create a feeling of confidence in the quality and reliability of your entire stock. And more than that—a Curtis Compressor will save you big money by supplying air for air hoists, painting, cleaning, vulcanizing, blowing dust and drillings from tools and serving you in many other ways.

5 Sizes—125 Combinations

There is a Curtis Compressor to meet the requirements of your business in every way —just the size, arrangement and price to please you. It will pay you to investigate. Ask your jobber—or cut out and mail us the attached coupon TODAY.

Curtis Pneumatic Machinery Co.
1546 Kienlen Ave.
St. Louis, Mo.

Gentlemen: Please send me full details on Curtis Air Compressors —your proposition and low prices.

Name .....

Address .....

Jobber's Name .....

Address .....

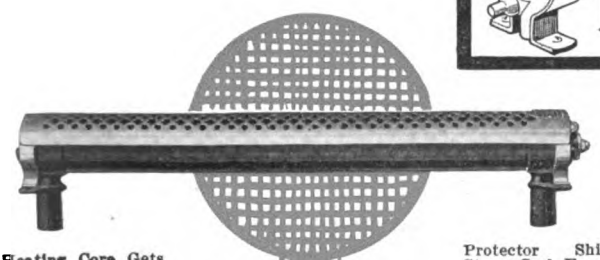
Curtis Pneumatic Mach. Co.

1546 Kienlen Ave., St. Louis, Mo.

Branch Office
531-B Hudson Terminal,
New York City

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UTILITY Protected Foot Rail HEATER

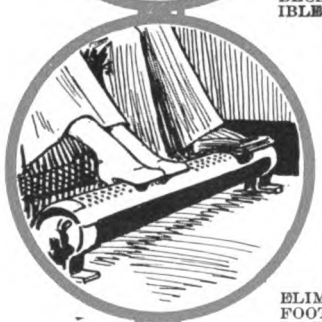


Heating Core Gets Hot Enough to Burn or It Would Not Heat Your Car

Protector Shield Stays Cool Enough to Touch So It Cannot Burn Shoes or Robes



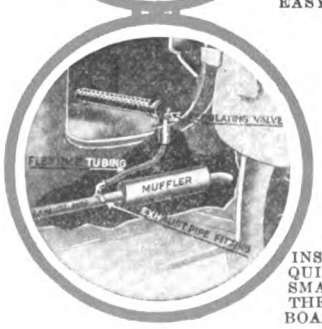
ALWAYS CLEAN BECAUSE ACCESSIBLE



ELIMINATES THE FOOT RAIL AND ITS ATTENDANT EXPENSE



SIMPLE OPERATION EASY CONTROL



INSTALLATION REQUIRES ONLY TWO SMALL HOLES IN THE FLOOR BOARDS

How and Why

UTILITY Protected

Is the Desirable Heater for Jobbers and Dealers to Catalog and Sell

The UTILITY Protected Foot-Rail Heater—by reason of its principle, construction, cost and service, is the definite choice of manufacturers, jobbers and dealers—because car owners demand it by name.

It may be installed anywhere in the car, but should displace the foot rail. This installation conforms to the advice of physicians, that heat delivered directly against any part of the body—except the feet—or breathed straight into the lungs, is extremely injurious to health, and breeds dangerous colds.

Installed in place of the foot rail, the UTILITY Protected Heater *heats by tempering the atmosphere of the entire car.* It warms the passengers all over—the way summer weather warms them.

The UTILITY Protected Heater is easily cleaned—always sanitary and free from odors of the street, or escaping gas. Simply regulated by foot-controlled valve, to exact temperature desired. Absolutely silent in action. Will attain maximum heat in a minute or less.

By displacing the foot rail, it removes this item from manufacturers' expense. Requires drilling of but two small holes in the floor, both of which are covered completely by air-, dust- and noise-proof flanges.

Now in use as standard equipment on progressive cars you will know.

Write for free illustrated literature and complete details.

THE HILL PU

ARCHER AVENUE

Eastern Sales Office:

HILL PUMP VALVE CO. UTILITY CHICAGO U.S.A.

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UTILITY Protected Foot Rail HEATER

—manufacturers

It is as much a duty to equip your cars that are to be used in winter with a UTILITY Protected Foot Rail Heater as it is the duty of the contractor to specify a heating system in your home, factory or office.

Other manufacturers include UTILITY Protected Heaters in their specifications for patrons' comfort—and because UTILITY installation actually sells cars.

—jobbers

Over 200 new jobbers added to our list this year—many of them veterans who know the heater market from A to Z—proves the established demand for UTILITY Protected Foot Rail Heaters.

Experience shows that UTILITY is the car heater it pays to catalog and sell.

—dealers

The selection of UTILITY Protected Heaters by the majority of jobbers in the United States, is their recommendation to you. UTILITY Protected Heaters are in their hands in force—favorites of the trade-wise men who know. UTILITY Protected Heaters sell. They have every advantage from price to service. Once in your stock, they move.

—prices

No heating expense whatever is involved. Once installed UTILITY Protected Heaters work free.

UTILITY Protected Heater	$15.00
UTILITY Jr. Protected Heater for Fords	7.50
UTILITY Front Seat Heater, for Maxwells, Chevrolets, Fords and Front Seat Installations in all other cars	$10.00
Prices west of Rockies:	
UTILITY Protected Heater	$16.00
UTILITY Front Seat Heater	10.75
UTILITY Jr. Heater	8.00

Write for free illustrated literature and details

MP VALVE COMPANY

AND CANAL STREET, CHICAGO

149 Church Street, New York City

HILL PUMP VALVE CO. UTILITY CHICAGO U.S.A.

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1918 Catalog **THE FULTON LINE** *Now Ready*

At the CHICAGO SHOW—Room 816, La Salle Hotel

AMERICAN BUMPERS

Prices That Are Right—Plus Quality

Jobbers and Dealers—investigate our 1918 line. It is *complete* in every detail of styles and sizes. Bumpers to fit all cars, both front and rear. Distinctive and practical designs.

QUALITY—Best grade of malleable iron and cold rolled bar stock. Each part machined and hand polished. Nickeling guaranteed for one year of actual service.

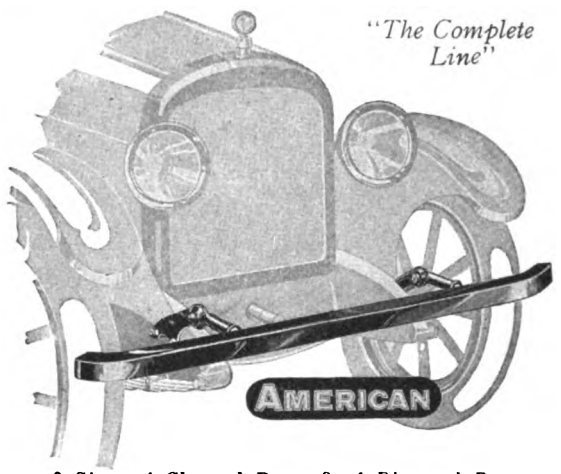
DELIVERIES—Our thoroughly equipped modern factory manufactures nothing but bumpers. Ample supply of raw materials assures *dependable deliveries.*

SPECIAL SERVICE—A department devoted to solving bumper problems. Particular attention paid to cars requiring special fittings.

CATALOG—Full listing of AMERICAN BUMPERS in 1918 catalog of THE FULTON LINE. Write for it today. Ask for FREE chart showing AMERICAN BUMPERS for all cars.

Made by the American Metal Parts Co. Milwaukee Wisconsin

Sole Sales Representative, THE FULTON CO., Milwaukee, Wisconsin



3 Sizes of Channel Bars—2 of Diamond Bars —and 2 inch Octagon Channel.



"E-Klips"

Spark Plugs

A specially well-built line of Spark Plugs. On the market for years, establishing a record of SERVICE and SATISFACTION.

Soot-proof, leak-proof and oil-proof features.

Good profit and a quick seller for dealers.

Made in different styles, sizes and threads to fit all cars.



Fulton Mud Hooks

The most practical device of its kind on the market. Strap one to each rear wheel. Act with a steady lift which does not strip the differential gears. Save their cost over and over. Thousands in use. Malleable iron with strong web straps. Light and occupy small space in tool box. A big seller.

The AERMORE Exhaust Horn

"The Signal with a Smile"

Built on the pipe-organ principle. Gives a signal that is pleasing to the ear and does not frighten. Yet it is effective for long or short distances.

Requires no upkeep. First cost is the only cost. Cannot clog. Has no wires or batteries. No movable parts to wear out. Easy to install and lasts as long as the car.

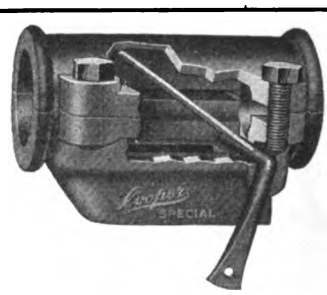


Made by The Fulton Company, Milwaukee, Wisconsin

Cooper

Cooper "Special" Cut-out

Attaches over section in exhaust pipe. *You need not cut the pipe in two. About one-half of the pipe is left for support.* Not a heavy cut-out but light in weight. Flapper fits the pipe and diverts the exhaust to the opening, which is shaped to give easy exit. Made in sizes from 1½ to 2½ inches to fit all cars.





Cooper Cut-out Outfits

High-grade materials, accurately machined. Air-tight. In mounting cut V opening in pipe large enough to clear butterfly valve. Valve and pedal finished in special hard-baked enamel that will not chip or peel.

Cooper FORD Foot Accelerator Outfit

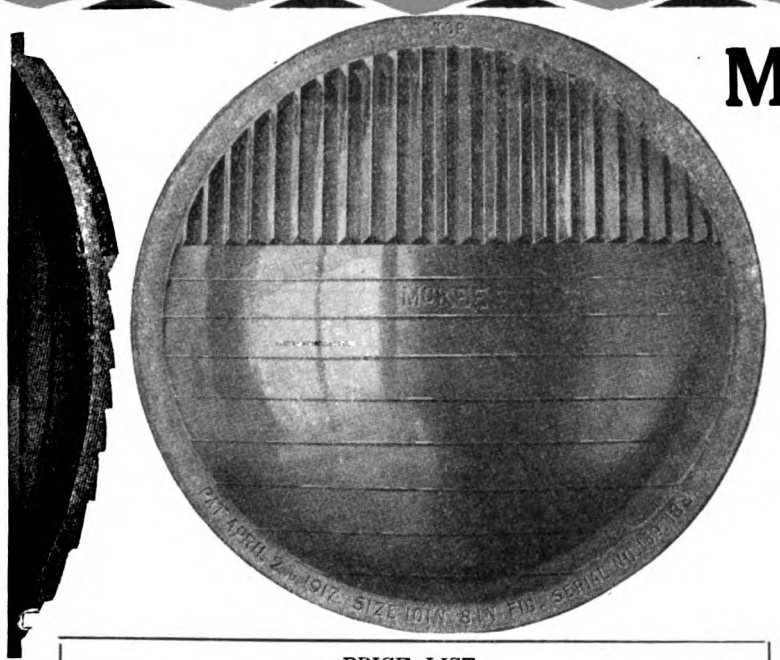
A practical accelerator that gives positive control of the carburetor. Only three parts—no telescoping tubes—no pulleys—no chain or cable to wear out quickly and give endless trouble. The outfit can be installed in fifteen minutes. No further attention is necessary. A foot rest is furnished with each outfit, thus making it complete.

Made by the Cooper Mfg. Co., Marshalltown, Iowa

Sole Sales Representative, THE FULTON CO., Milwaukee, Wisconsin

THE FULTON COMPANY, Milwaukee, Wis.

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McKee Wins in Texas

Over 24 Competitors

State Highway Department officially recognizes superiority of McKee Lens over 24 other well known headlight devices, in its ability to comply with the law while carrying plenty of candlepower thoroughly to illumine the road.

McKEE

STANDARD AUTOMOBILE HEADLIGHT

LENS

PRICE LIST.

Crystal Glass				
5 in. to 8½ in.,	inclusive,	per pair		$2.50
8¾ in. to 9½ in.,	inclusive,	per pair		3.00
9¾ in. to 10½ in.,	inclusive,	per pair		3.50
10¾ in. to 11½ in.,	inclusive,	per pair		4.00
Amberoid				
5 in. to 8½ in.,	inclusive,	per pair		$3.50
8¾ in. to 9½ in.,	inclusive,	per pair		4.00
9¾ in. to 10½ in.,	inclusive,	per pair		4.50
10¾ in. to 11½ in.,	inclusive,	per pair		5.00

In its "FINAL REPORT OF TESTS OF AUTOMOBILE LENSES" the *Texas State Highway Department recommends that*

> "the following named lenses shall be declared satisfactory and considered as complying with the law only when used with source of light of candlepower not greater than candlepower indicated below for each lens."

(Then follows list of 23 lenses, including all the principal headlight devices offered for sale, with "Maximum Permissible Candlepower" given in each case.)

The McKEE LENS is *the only one allowed to carry 40 candlepower* while the next highest is 32 and the general average is less than 19.

The Big Point brought out by these tests is that the McKee Lens *to a greater degree than any other headlight lens* cuts down the glare and throws more light on the road.

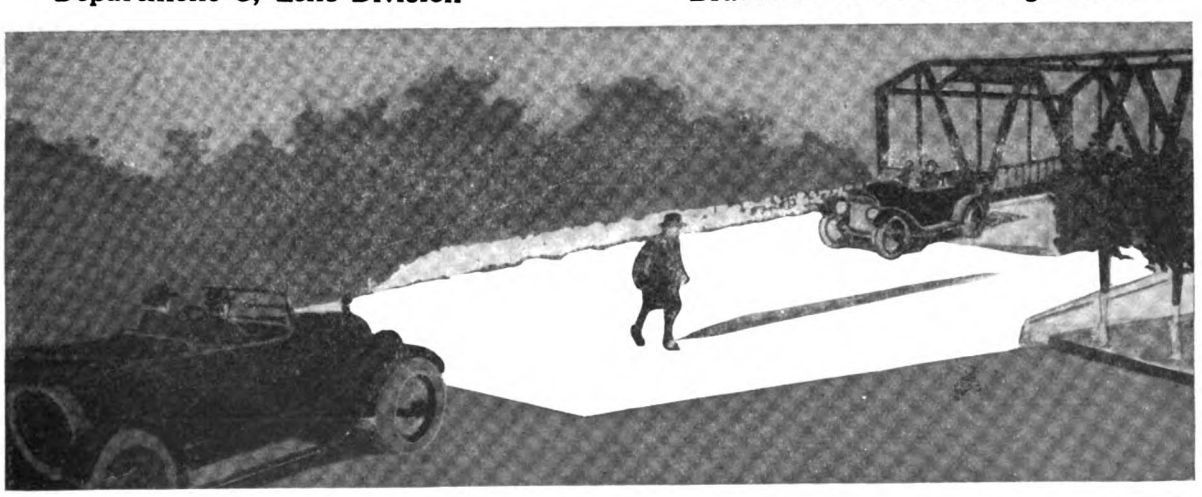
Exhaustive tests by one of the largest motor car manufacturers proved that the McKee Lens *cuts out 87% of glare, adds 38% to road light*, a far superior showing to that made by any of its competitors in the same tests.

DEALERS AND JOBBERS: Get our discounts.

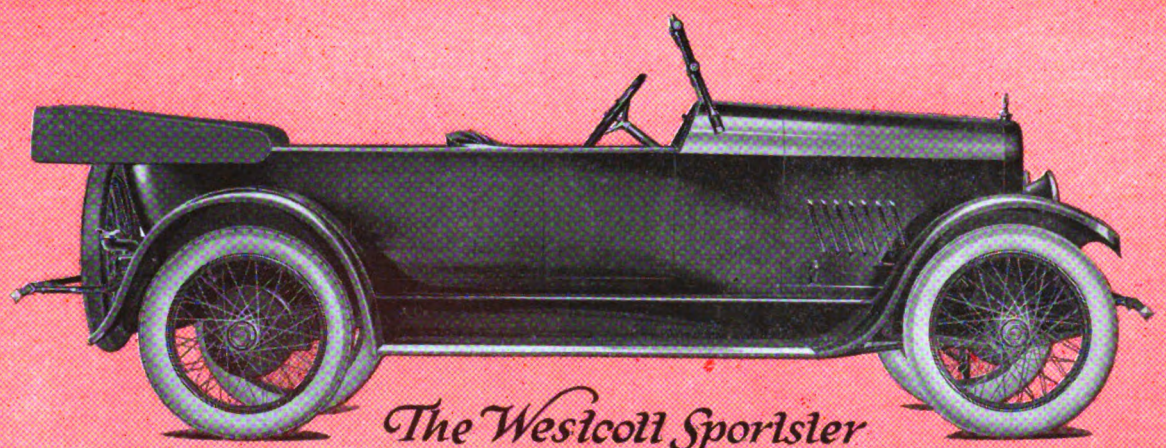
Capacity, 15,000 Pairs Daily.

THE McKEE GLASS CO., Jeannette, Pa., U.S.A.

Department C, Lens Division **Branches in all the Large Cities**



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The Westcott Sportster

$2290 f. o. b. Springfield, Ohio

Wire Wheels $100 Extra. Price includes Cord Tires and Bumpers front and rear

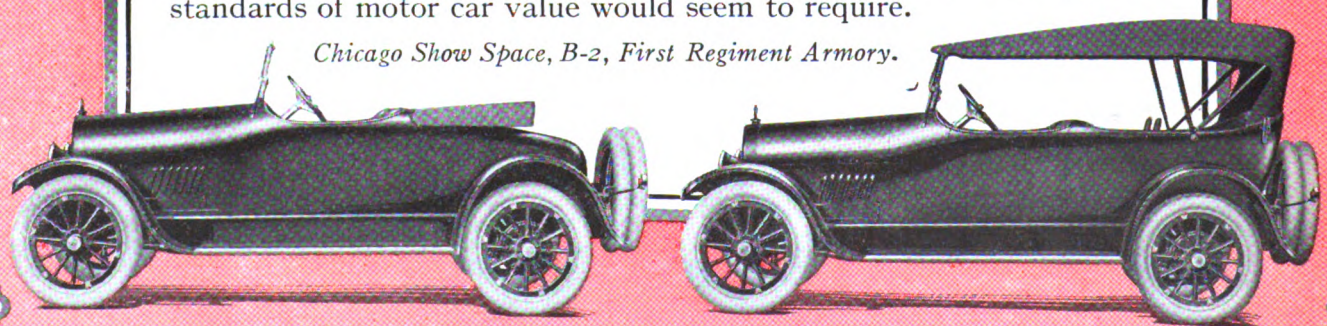
THIS new pre-season Sportster is the latest evidence of the Westcott policy of keeping the Westcott Six well in advance not only in mechanical progress but in development of design and completeness of equipment.

To the engineering excellence and exclusive construction features that distinguish the Westcott from a practical standpoint, this new model adds the dashing lines, richness of finish, and wealth of accessories that will make it a delight to those who are satisfied in cars, as in clothes, only with the fashions that are a season ahead.

With the inclusion of the Sportster, the Westcott advanced ideas in motor car construction are available to distributor or individual buyer in just the type of car desired, whether the purchaser is concerned with winter comfort or is anticipating the preferences that will prevail in the months to come.

To see the Westcott line at the Show, to study the Westcott Specifications, and to examine the Westcott workmanship is to realize why the Westcott is bought by the man who wishes to represent or ride in a car that offers more in performance and appearance than present standards of motor car value would seem to require.

Chicago Show Space, B-2, First Regiment Armory.



The Westcott Four Passenger Touring Roadster
Price $1890. f. o. b. Springfield, Ohio

The Westcott Seven Passenger Touring Car
Price $1940. f. o. b. Springfield, Ohio

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Westcott

Sportster Features

Long Wheel Base. Low Body. Straight, rakish lines.

Sloping Wind-shield of latest design.

Undivided Front Seat.

Walnut Cabinet in rear of front seat. Three compartments, each with door and Yale lock, opened with ignition key. Icy-Hot Bottle in middle compartment. Tonneau Light above cabinet.

Electric Cigar Lighter with extension cord.

Cord Tires, 32 x 4½.

Westcott "self-acting" top. Gypsy curtains.

Bumpers front and rear.

Warner Lenz.

Body Liberty Blue.

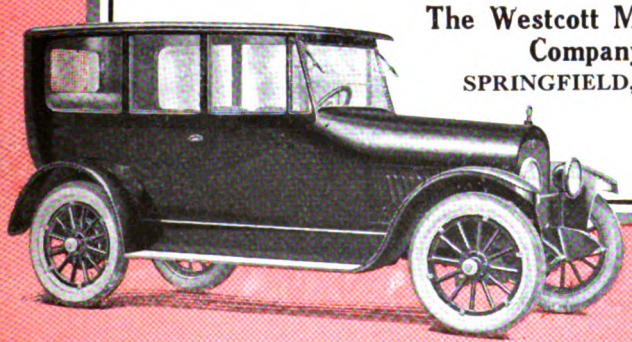
Geared to qualify as a gentleman's Sportster.

Other specifications same as the general Westcott line.

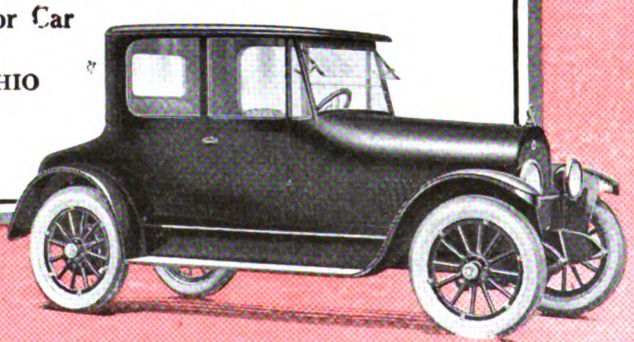
Westcott Superiorities

Continental Motor, 6-cylinders, 3½ x 5¼; Cast Aluminum Crank Case. Timken Axles, Bearings, and Brakes. Delco Starting, Lighting, and Ignition. Wick-fed Oil Cup Chassis Lubrication *without a single grease cup.* "Self-acting" Top of Pantasote on all open models, affording simplicity and ease of adjustment. Thermostatic Control of Engine Temperature. Fedders Cellular Radiator. Rayfield Carburetor with Integral Priming Device, operated from seat. Gemmer Semi-irreversible Steering Gear; Adjustable Steering Column; Solid Walnut Steering Wheel, Aluminum Mountings. Spicer Universal Joints. Boyce Moto-Meter. Jiffy Curtains with Blackmore Door Openers; Tool Compartment in Driver's Door. Wheel Base 125". Double-ventilating, Rain-visioned, Storm-Proof Wind-shield. Chrome Vanadium Springs throughout. Controls in Normal Driving Position. Concealment of Auxiliary Seats. Quality and Beauty of Upholstery. Quality of Instrument Board and Instruments. Low Up-keep; Endurance; Beauty; Comfort. 35 x 4½ Oversize Tires (32 x 4½ on Sportster) Non-skid Rear; Ribbed Front. French Pleated No. 1 Long Grain Dull Leather upholstery; Genuine Curled Hair and Double-deck Springs. Power; Hill Climbing; Low Throttling; Acceleration; Accessibility; Freedom from Vibration. Variety of Color Selections. Ample Leg Room in both Compartments. Every Car Road-tested before Shipment.

The Westcott Motor Car Company
SPRINGFIELD, OHIO



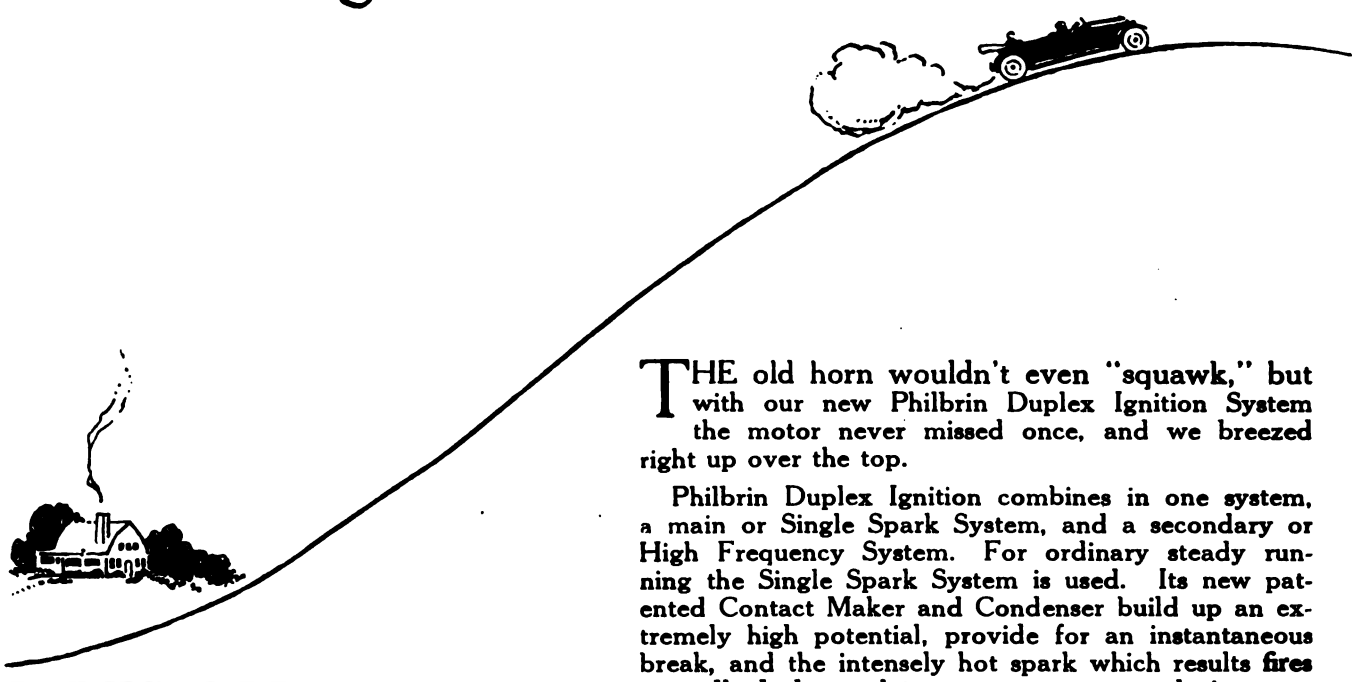
The Westcott Seven Passenger Convertible Sedan
Price $2790. f. o. b. Springfield, Ohio



The Westcott Four Passenger Convertible Coupe
Price $2790. f. o. b. Springfield, Ohio

Digitized by Google

"—and with the battery so weak that it wouldn't blow the horn, we made that hill on high."



THE old horn wouldn't even "squawk," but with our new Philbrin Duplex Ignition System the motor never missed once, and we breezed right up over the top.

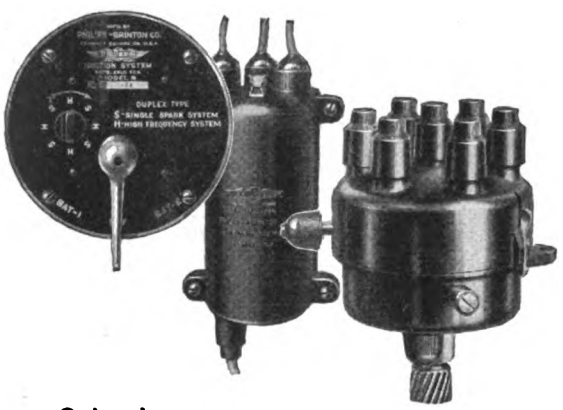
Philbrin Duplex Ignition combines in one system, a main or Single Spark System, and a secondary or High Frequency System. For ordinary steady running the Single Spark System is used. Its new patented Contact Maker and Condenser build up an extremely high potential, provide for an instantaneous break, and the intensely hot spark which results **fires exceedingly lean mixtures**—saves gas—and gives you added power and flexibility, with greatly increased economy, both of gas and current.

But for abnormal conditions, when you are troubled with poor gas, fouled spark plugs, cold cylinders, or poor carburetion, just turn the switch to "H," and the resulting stream of hot, intense sparks from the High Frequency System relieves all ignition troubles—spurs the motor to super-service. You can easily take the steepest grades, or slide along on high as smoothly at four miles as at forty.

Philbrin Duplex Ignition is more dependable than any single system could possibly be, and each separate system or unit is also vastly superior in performance to all other systems.

Philbrin Duplex is the last word in Ignition, and Philbrin Systems are made for any car for replacement of single spark systems, magnetos, and also for first installation.

Dealers: Write for our exclusive sales proposition. Write at once for unassigned territories.



Only three parts—a combined switch and magnetic interrupter, a coil, and a distributer

See our exhibit at the Chicago Automobile Show, Booth 87

PHILIPS BRINTON COMPANY
503 SO. BROAD ST. KENNETT SQUARE, PA.

PHILBRIN
DUPLEX IGNITION
—with a second system to spur the motor to super-service.

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SE-MENT-OL

AUTOMOBILE RADIATOR CEMENT

"Finds the Leak and Fixes It"

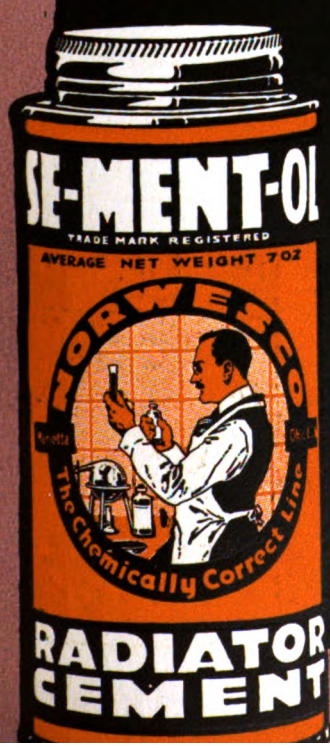
INTRODUCING

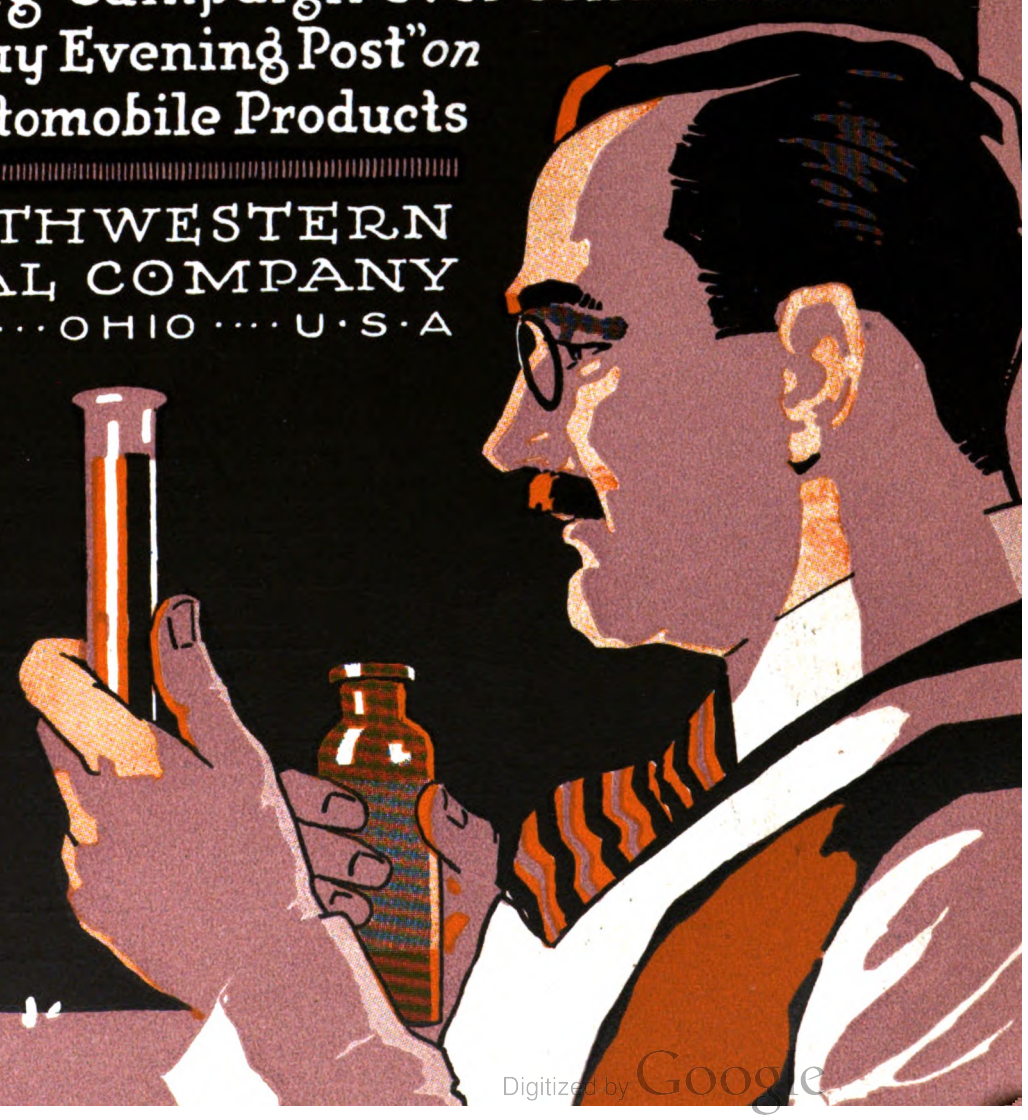
NORWESCO

The CHEMICALLY CORRECT LINE

This Figure will identify *the* NORWESCO LINE *in the* Greatest Advertising Campaign ever conducted *in* "*The* Saturday Evening Post" *on* Chemical Automobile Products

THE NORTHWESTERN CHEMICAL COMPANY
MARIETTA ···· OHIO ···· U·S·A





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What *the* Norwesco Laboratories Have Done For *the* Garage Man



FROM the Norwesco laboratories comes a line of Chemical Automobile Utilities that places in your hands a great sales opportunity.

You, as a progressive merchant and probably a car owner as well, realize the salability of Norwesco products, which have proved their value to a million motorists, and are backed this year by the greatest advertising drive ever launched in the Saturday Evening Post on chemical automobile utilities.

You will have a tighter hold on ***your motoring trade*** when you handle

NORWESCO

The Chemically Correct Line

Probably you have long known the line through SE-MENT-OL, the radiator cement that has revolutionized the methods of mending leaky radiators.

Motorists everywhere have been quick to adopt SE-MENT-OL because it finds and fixes the leak, with a minimum of time—and does not lay up the car. And garage men have also been quick to adopt SE-MENT-OL because it sells readily—and ***makes good.***

The same holds true of each product in the Norwesco line. And the reason is that each one is "Chemically Correct"—compounded after a formula which chemistry says is right.



Mail the coupon below for complete information regarding our introductory assortment and display stand featuring Norwesco products nationally advertised.

The Northwestern Chemical Co.,
401 State St., Marietta, Ohio, U. S. A.

The Northwestern Chemical Co.
401 State St., Marietta, Ohio, U. S. A.

Please send me complete information regarding your Introductory Offer and Display Stand.

Name .....

Address .....

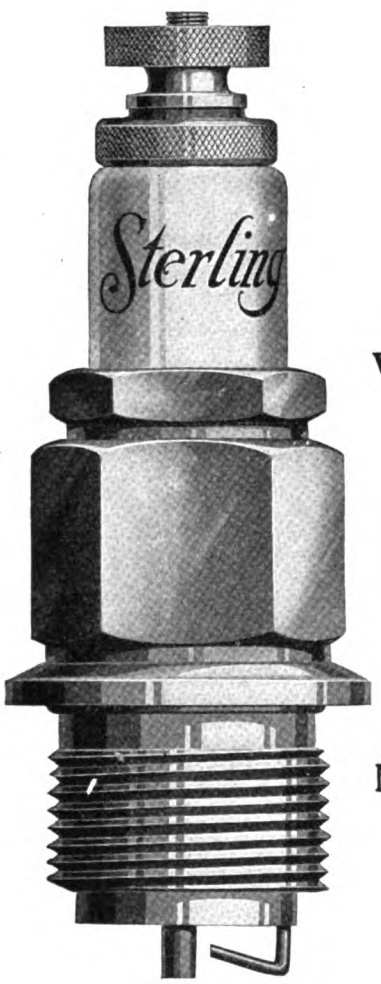
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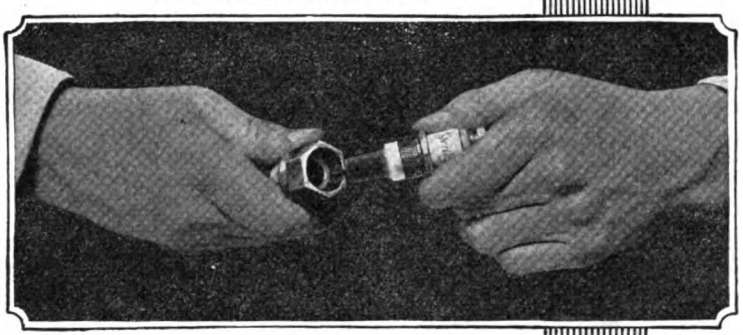
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Sterling Spark Plugs

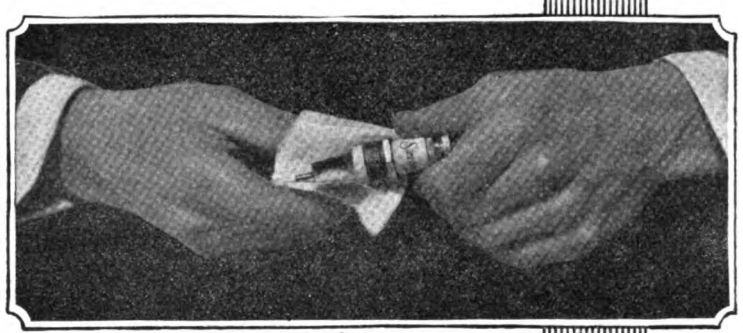
Cleanable



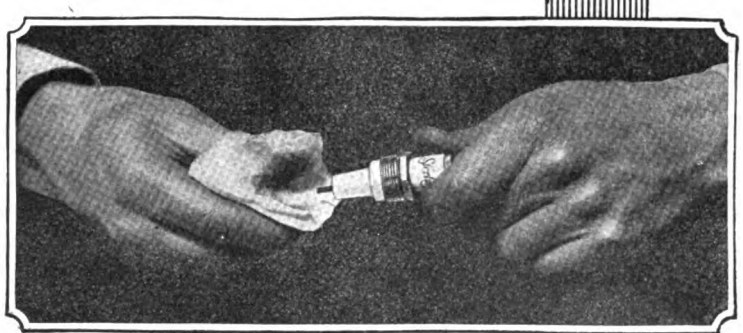
A size and style for every car



When carbon accumulates—



Make your Sterlings new—



Note the improved power—the sweeter running motor.
Dealers with Sterlings render customers a real service.
For sale by progressive garages and supply dealers.

Lockwood-Ash Motor Co.
1954 Main Street
Jackson Michigan

(32)

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The New
1918 MOON Cars

Six-45
7-pass. Touring and Club Roaster
$1685
f. o. b. St. Louis

Six-66
7-pass. Touring and Club Roaster
$1850
f. o. b. St. Louis

Markedly beautiful cars of the ultra-smart type. You would say that the Moon body must have been custom-built, if you didn't know you were looking at a stock car. The finish is such as nobody but a coach builder—and a good one—could turn out—and there is style, quality and solid easy-riding comfort inside.

But the work on a Moon Car is not left to the experts whose business it is to create the looks and the luxury: Masterly designing and building are plainly in evidence throughout—and quality—from the ample, flexible power of Moon Red Seal Continental motors to every minor detail that goes to uphold the reputation of the Moon for smooth running, staying superiority.

Among the popular-priced Moon models is your favorite type of car—the complete achievement of a completely balanced manufacturing organization.

The New Moon Six-36

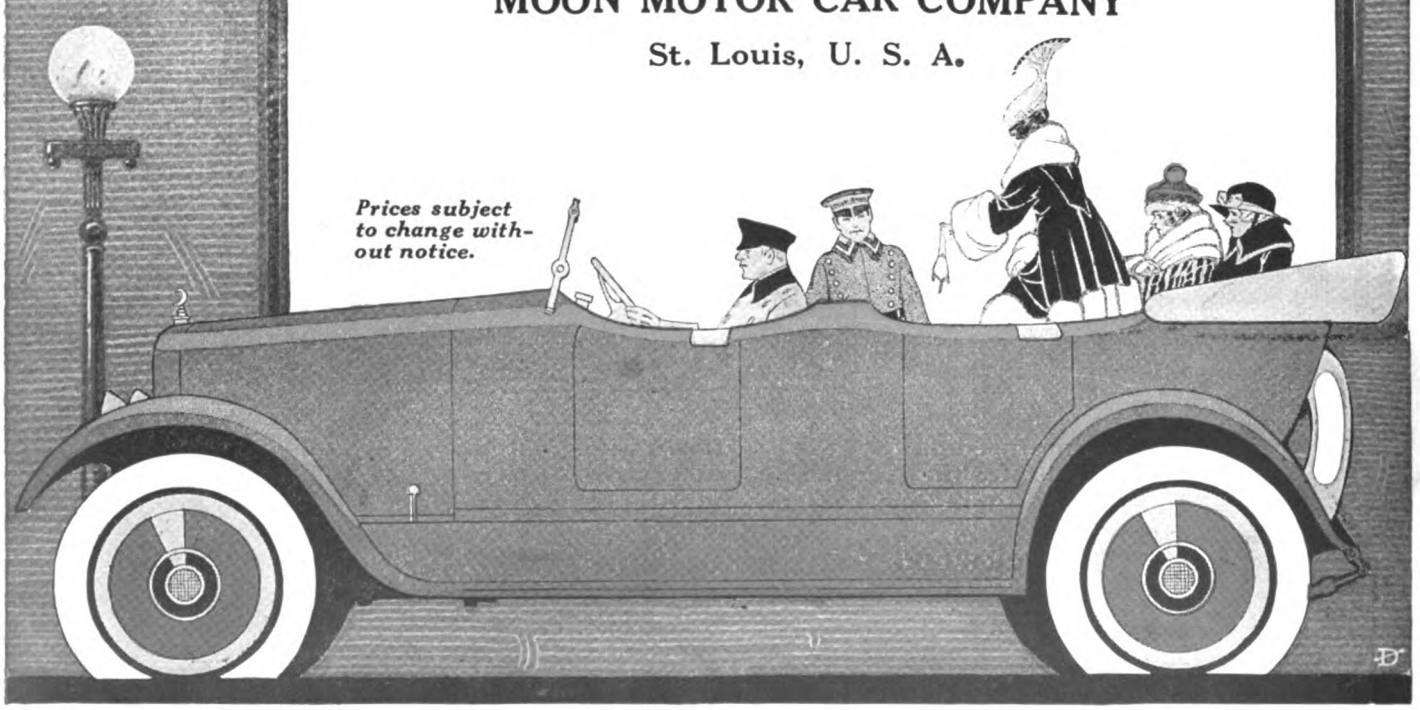
—the sensation-maker light Six whose appearance last Fall was conclusive evidence of two important accomplishments. This car is a real Six—in every respect, such a car as we could never hope to put out to sell at the *Four* price quoted until we were fully equipped to supply the enormous demand that was bound to

$1195
f. o. b. St. Louis

greet it. So we began by building up to the demand—increased our factory capacity by 10,000 cars. Then we announced the Moon Six-36—and the demand has so far exceeded our expectations that the dealer who wants the pick of the territory we still have left should write at once or wire for information.

MOON MOTOR CAR COMPANY
St. Louis, U. S. A.

Prices subject to change without notice.



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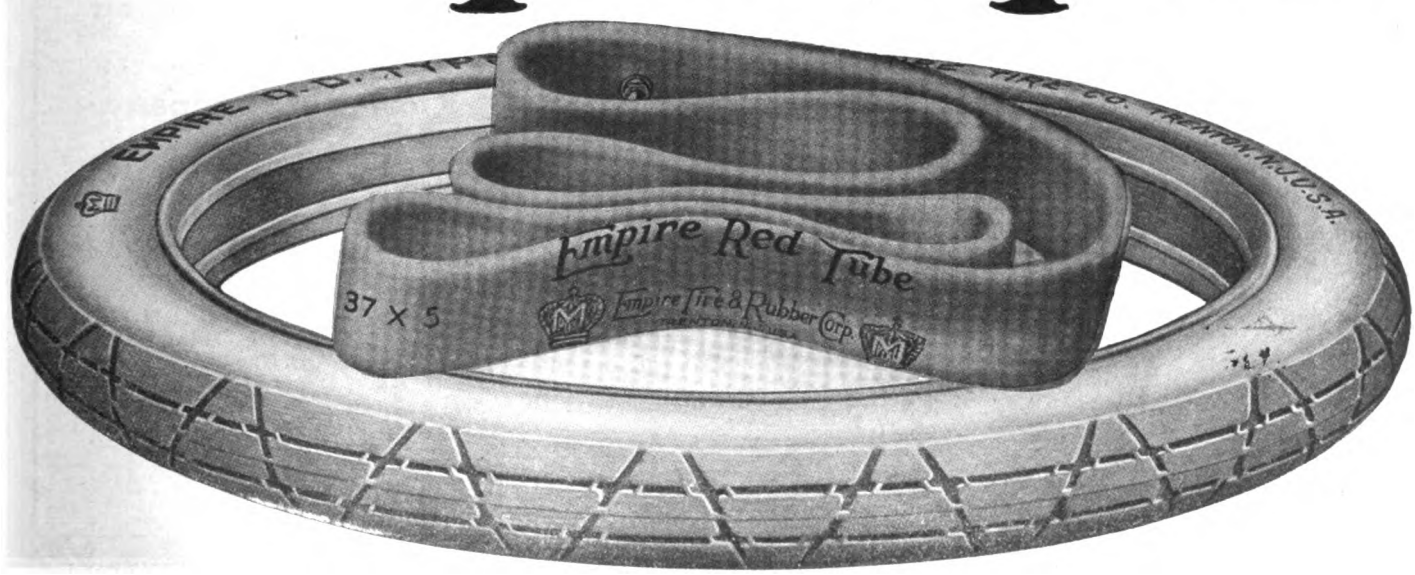
The Empire Tire Dealer

has the best proposition in the tire business

1. Because he gets the fairest margin of profit.
2. Because he has a fast seller, and a repeater—Empire sales increased 105 per cent in 1917.
3. Because he has behind him a unique and powerful advertising campaign. The reason our advertising is signed with the name "The Empire Tire Dealer", is because we want to turn the reader's attention to the local dealer who has tires to sell.
   Thus the national advertising becomes a *local force* for each Empire dealer.

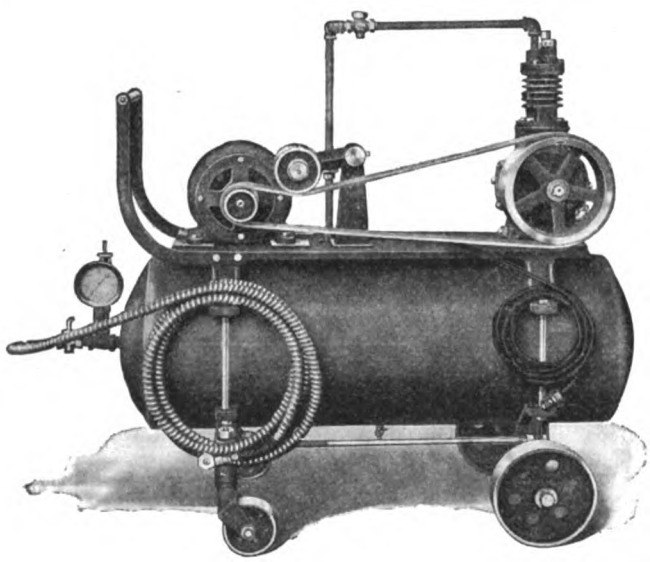
THE EMPIRE RUBBER & TIRE CO., Trenton, N. J.

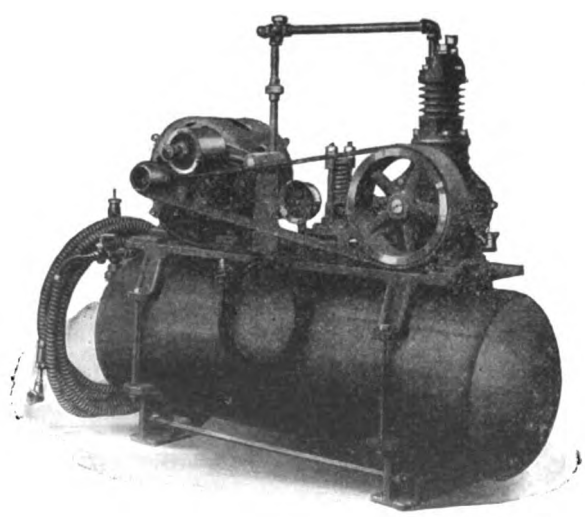
Empire Tires and Tubes



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A GARDNER GARAGE PUMP





Keeps Your Customers Satisfied

It fills your storage tank quickly with clean, pure air free from oil.

No waiting or delays with a Gardner.

This Means Real Service

Forty different styles and sizes. Manufactured by a company having fifty years' manufacturing experience and whose products are known everywhere.

Write us for booklet A C 14 A—It tells you how to make your air service pay.

The Gardner Governor Company

1702 Fisher Bldg.
Chicago, Ill.

301 Singer Bldg.,
New York City.

T. T. Burchfield Co.,
604 Arch St.,
Philadelphia, Pa.

Quincy, Illinois,
Williamson St.

Rix Compressed Air & Drill Co.,
505 Howard St.,
San Francisco, Cal.

Rix Compressed Air & Drill Co.,
409-11 E. Third St.,
Los Angeles, Cal.

Don't let your jobber try to sell you a cheaper pump. It won't give the service.

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Two Ways of Travelling-Protected

The traveller feels better protected and safer on a railway journey if he purchases an accident insurance policy. It is that feeling of security, that insurance against danger, which increases the joy of the journey when you are riding in your motor car fortified by Tuthill Titanic Springs. The Tuthill Titanic gives you a 37 year, Old Line, Gibraltar-like insurance against accident or possible injury—because they are guaranteed for life against center breakage.

Tuthill Titanics insure easy riding, constant no-squeak lubrication, and the uninterrupted use of your car. Best of all, they insure against constant worry—giving you true peace of mind when motoring with friends and family.

Replace With Tuthill Titanics

In their construction only high-grade steel is used. They are made with our patented center-arch—no weakening center bolt hole—no center nib. With such reinforcement there is no possibility of breaking under strain. They are covered by the broadest guarantee ever placed on automobile springs.

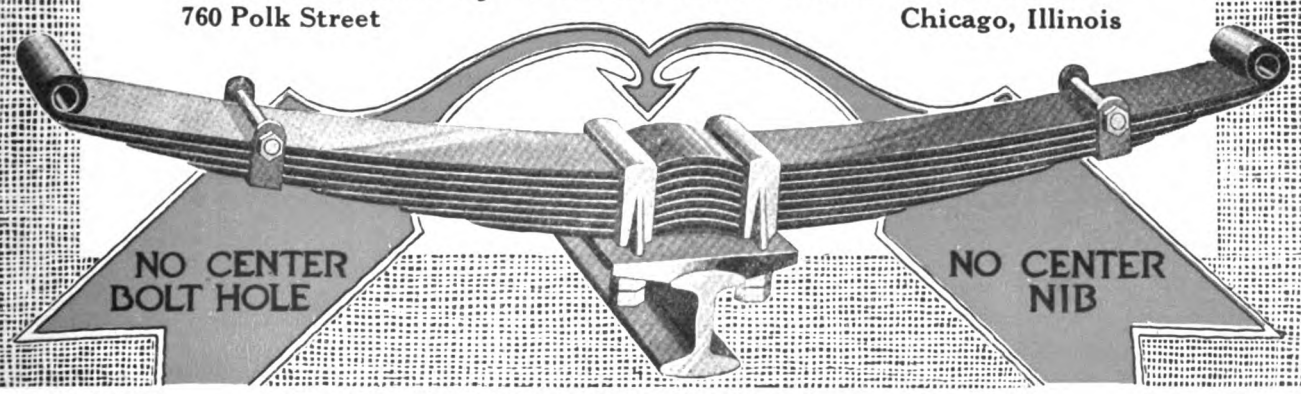
Your Double Guarantee

More Tuthill Titanics are used for replacements than all other makes combined. There is a Tuthill Titanic for every make of car. See them at the New York and Chicago Auto Shows. Dealers everywhere know the advantage of selling these quality springs. If you are not supplying your customers today with Tuthill Titanics—write at once for our complete new price list. Sell a spring you can guarantee and which will bring you the business. Your trade appreciates the business. For your nearest Tuthill Distributor, see Chilton's Automobile Directory or Automobile Trade Directory.

SEE THE TUTHILL TITANIC AT THE AUTO SHOWS

Manufactured by TUTHILL SPRING COMPANY

760 Polk Street Chicago, Illinois



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Distinctive
garages
are built with

MIDLAND TERRA COTTA

MIDLAND
TERRA COTTA
COMPANY
1515 Lumber Exchange
Chicago





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The hand-writing on the wall is evident to millions of motorists

Patriotism as well as pocketbook now urges them to install gas-tight piston rings and *stop fuel waste.* We are hammering these facts home with full pages and half pages in the

Saturday Evening Post
Literary Digest Collier's

We are convincing motorists that *every* car needs new piston rings after a time—and that Inlands will save them $5 to $10 per set over *any* other type of gas-tight ring.

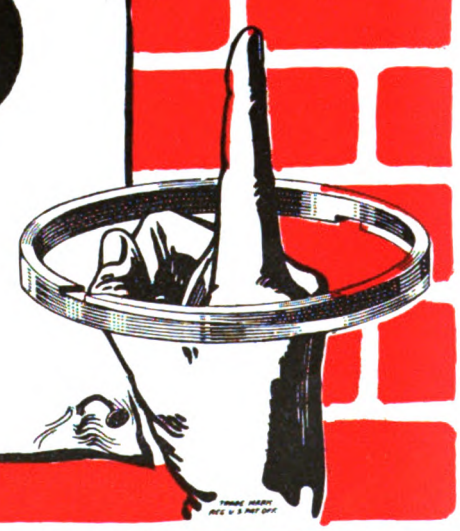
Wide-awake garage men are falling right in line with Inland's big advertising and getting the benefit of a big overhauling business. Are you with us? If not, get our proposition today.

INLAND
1 PIECE PISTON RING

Spiral Cut makes it absolutely gas-tight. One-piece construction makes it low-priced. Equal width and thickness makes it strongest and most durable.

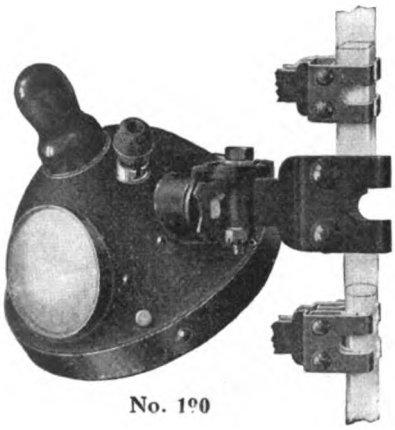
Ask your jobber for terms on Inlands

Inland Machine Works, 815 Mound Street, St. Louis, U. S. A.



When writing advertisers please mention Motor World—It identifies you

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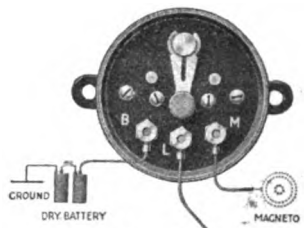
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No. 440

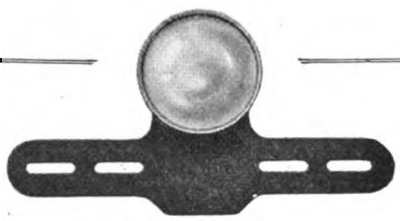


No. 456





No. 49 "H"



No. 364



X-Ray



No. 49 "J"



No. 79



No. 361

BEHIND every individual lamp in the Victor line lies twenty years' experience in the business of making quality lamps.

No wonder the Victor designs are practical, that they give you more convenience, more service, more value for the money.

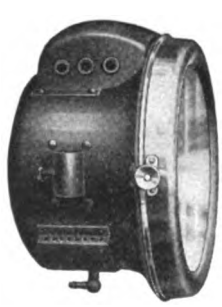
Lamps to meet every new condition and demand have been added to the Victor line. Write for the new 1918 catalog. See the complete Victor line at the New York, Chicago or Boston show.

The Corcoran-Victor Company
707 Reading Road Cincinnati, Ohio

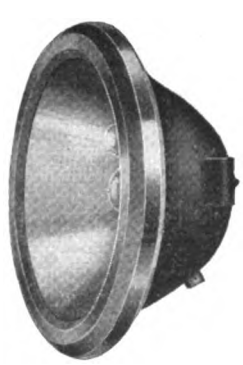
Victor
TRADE MARK



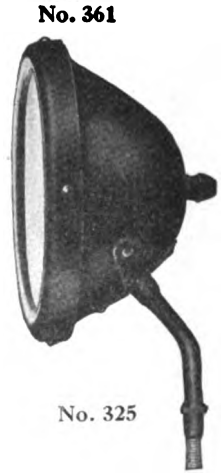
No. 50



No. 402, 403



No. 601, 608



No. 325



No. 622—Yale Lock



No. 372

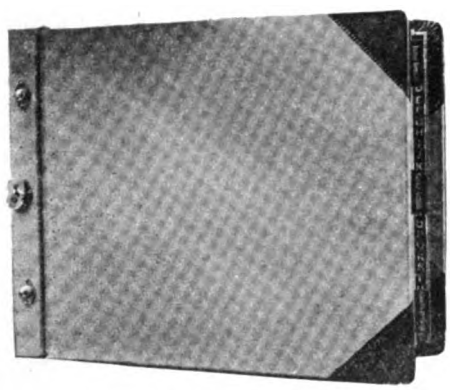


No. 622—Victor Lock

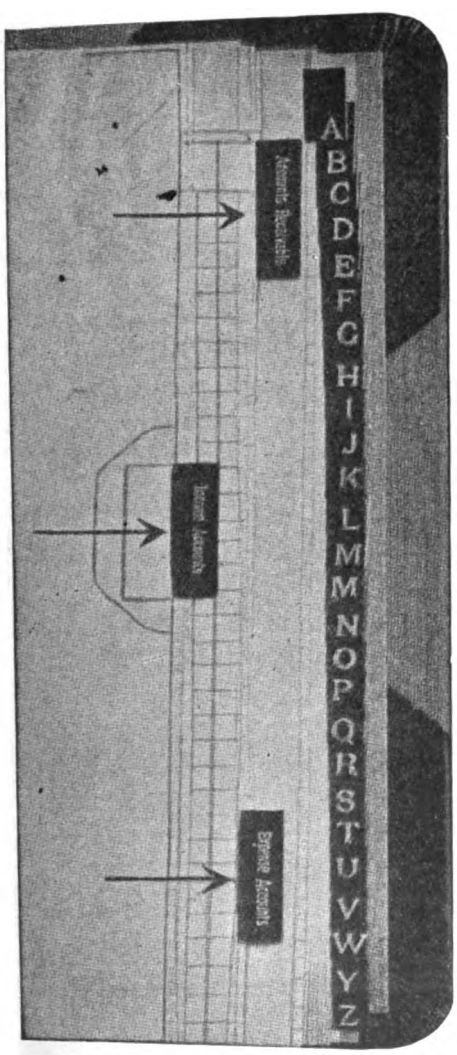
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You must make an income tax report—Can you?

Do You Know Just Where You Stand Financially?



THE ONLY BOOK needed in the System. Size 14½x11½ in. Picture below shows index division tabs under which entry forms are filed. Only three forms used. Quick, simple, easy to understand.



—are you making money or losing money?
—just how much are you ahead or behind?
—what part of your stock or shop is making and what part losing?

IF YOU CAN'T ANSWER THESE QUESTIONS right off the bat fill out coupon below and learn how to answer them quickly and exactly *at any time!*

EVERY LITTLE BIT HELPS IN THE WINTER! Losses and discrepancies that do not count for much in summer, when big profits are coming in, are drags on you during the lean winter months.

Motor World's Simplified System of Accounting

HERE IS THE CHEAPEST, SIMPLEST, AND SUREST METHOD of finding and stopping losses; of keeping your mind perfectly clear as to your financial status; of checking up purchases, sales, and stock on hand.

YOU CAN TURN LOSSES INTO PROFITS, if you know just why and where they occur.

YOU DON'T HAVE TO BE A BOOKKEEPER or a financial shark to learn or to follow this system. It is simple as A. B, C. COMPLETE INSTRUCTION BOOK SHOWS YOU EXACTLY HOW TO USE IT. You can start and run it yourself, or *any man* in your garage or shop can do it.

SENT ON 5-DAY APPROVAL. Get it, look it over, and if you are not satisfied with it, send it back and your money will be refunded.

DON'T LET ANOTHER DAY PASS WITHOUT IT. You can get the whole thing for $15, and it will save you that much in the first month you use it.

OVER 1500 GARAGE, REPAIR AND SUPPLY MEN ARE USING IT NOW—with splendid results.

TALLMAN, ROBBINS & CO.

Exclusive authorized manufacturers of Motor World Simplified System of Accounting

314 W. SUPERIOR ST., CHICAGO

New York, 320 Broadway

TALLMAN, ROBBINS & CO.
314 West Superior St., Chicago

Dear Sirs:

Ship me complete "Motor World Simplified System of Accounting" with Book of Instructions. I enclose $15, in full payment with understanding the same will be refunded if I am not satisfied and return the System within 5 days.

Name .....

Street and Number .....

City and State .....

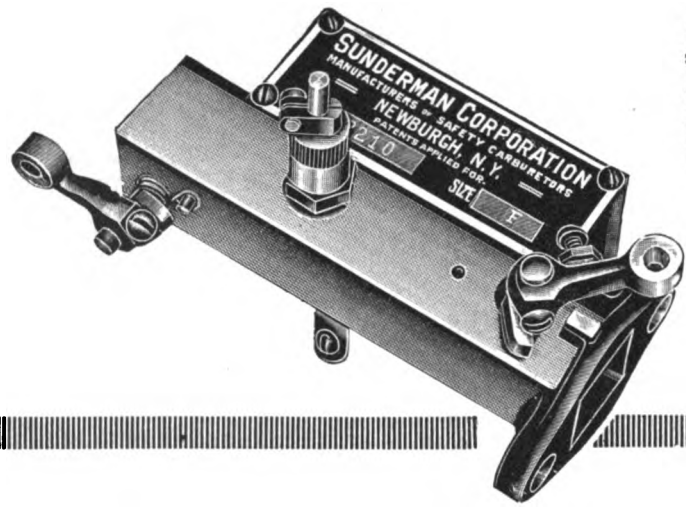
1-16-18

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$6

F. O. B Newburgh

For FORD, METZ and SAXON FOUR



For other cars the prices are $8 and $10, depending upon the fittings required. This model has given wonderful motor efficiency on all makes and models of cars.

Read This CLASSIC

We'd much rather have you make a similar test for yourself, than tell you about it in an advertisement. We present Mr. Leas' illuminating letter to you with only one change—fairness will not permit us to name the carburetors which were replaced.

The Experience of E. E. LEAS, Oakland, Oregon

Sunderman Corporation: Dec. 11, 1917.

Last year I ordered from you one Sunderman carburetor to fit 1911 Auburn.

My home address is Oakland, Oregon. Perhaps you will be interested to know the results I got from same. Previously I had used three other leading makes of carburetor on my Auburn, and the best I could get was 14 miles to gallon of gasoline. After installing your carburetor the road conditions were such that I never got a chance to test it out till June, when I started on a trip East, that covered 5100 miles.

On this trip I drove the Auburn to Kearney, Neb., a distance of over 4000 miles, and the average for the distance was a little over 19 miles to the gallon, and this without in any way changing motor from previous carburetor.

At first I hardly believed it myself, but as Mrs. Leas kept accurate record of all gas used and of the mileage I had to admit it is some carburetor.

Being an auto mechanic of some 12 years' experience I shall hunt no further for perfect carburetion.

Our trip was from sea level to over 10,000 ft. above with absolutely no kind of adjustment. In fact, I often told the Mrs. I rather enjoyed the change. E. E. LEAS, Oakland, Ore.

NOTE THESE POINTS PARTICULARLY

The car traveled with a Sunderman Carburetor from sea level to an altitude of 10,000 feet not only without an adjustment, but operating on an adjustment appropriate for another carburetor. We challenge any other carburetor in the world to submit to this test.

Mr. Leas is an auto mechanic—he knows what he is talking about. He knew enough to be dissatisfied with mediocre instruments—he knows when he has reached supreme satisfaction.

And 36% mileage increase, without properly adjusting our carburetor, up a grade of 10,000 feet, 4000 miles on end, on a car that was already getting fair mileage, is an achievement of which we are proud. Therefore we devote this page to it.

SUNDERMAN
Vacuum Carburetor

Digitized by Google

Dealers, we want to meet all of you at the Chicago Show—

Our Space is Armory Balcony
Booth 5

We Want to See All of You

We want to talk business with you—what we believe to be the biggest possible business of 1918.

All manufacturers and jobbers are convinced that this is going to be a great year for accessories. We believe it most firmly. Five million cars are going to run, if never another were made.

Last year, a time of business timidity, war scares and Liberty Loans, our industry made nearly 1,900,000 cars—an increase of about 400,000, and this year there is no reason for not making a further increase.

A Great Carburetor Market

The market for carburetors this year—today, next month and thereafter—is the greatest in history.

Are you going to get your proper part of the business? The way to get it is to stock and push the sale of the best carburetor in the country.

That Is the Sunderman Carburetor

Proofs are accumulating in our files that a remarkably high percentage of users believe that ours is the best carburetor on the market. **We know it**—and we want to make you know it.

We Want You to Sell It

We give you a fine proposition—ample service co-operation, and we shall in 1918 put behind its sale what is probably the most **consistent** and surely the most **constructive** advertising campaign, covering a wide list of trade papers, taking in all of the leaders and using commanding space in some special local motoring papers.

Therefore, See Us at the Chicago Show

It will be very much to your interest to tie up with us at once. But if you don't go to Chicago, be sure to write us. We'll give you immediate attention. DO IT NOW means profit for you.

SUNDERMAN CORPORATION

5 Chambers St., Newburgh, N. Y. **Western Office: 403 Kresge Bldg., Detroit**

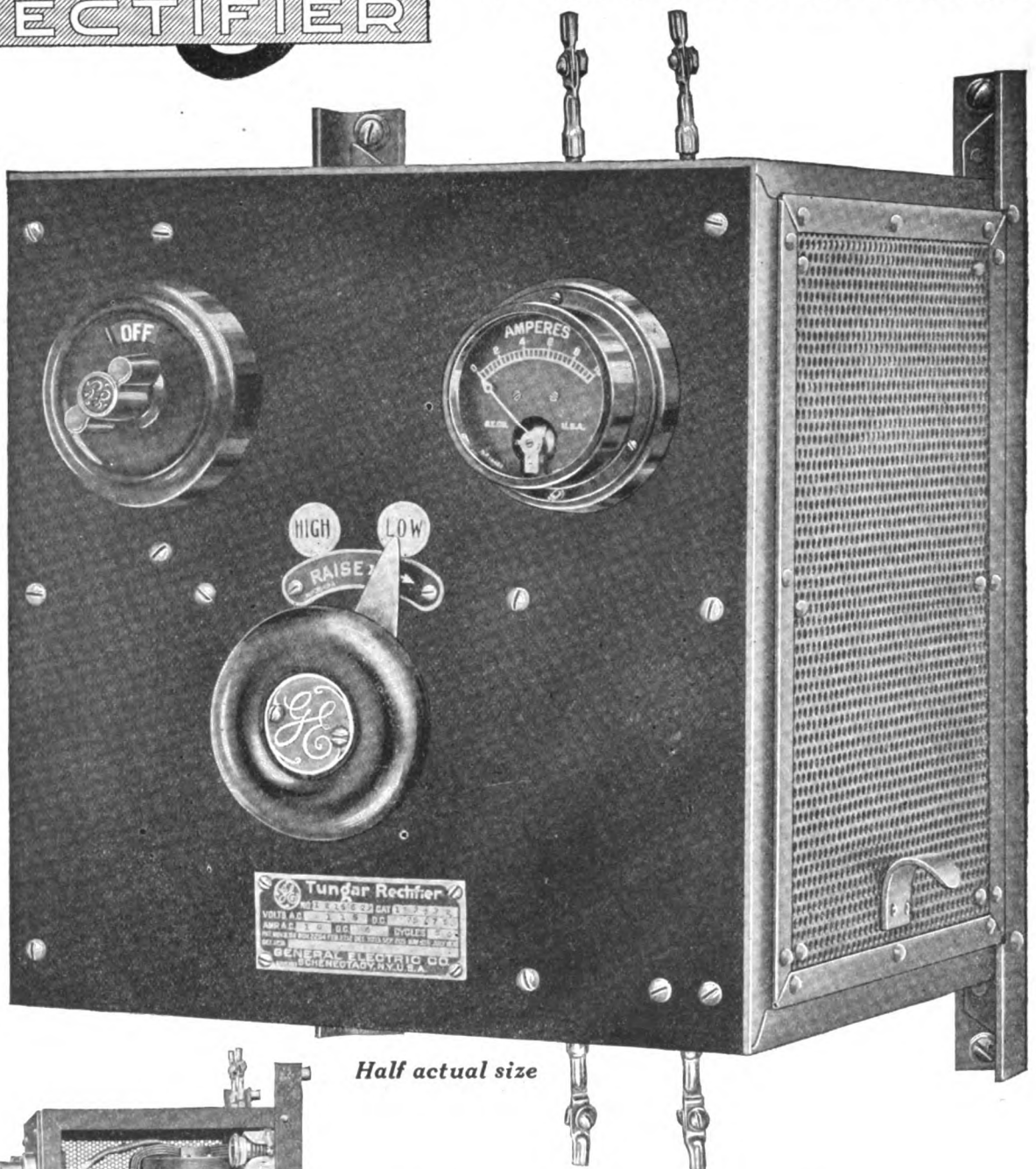
SUNDERMAN
Vacuum Carburetor

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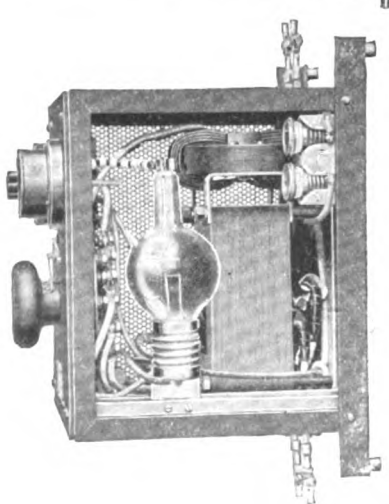
Tungar RECTIFIER

Safe—Simple—Self-Starting

SEE THE G-E EXHIBIT
AT THE NEW YORK and CHICAGO SHOWS



Half actual size



The 6 amp. 75 volt Tungar Rectifier will charge **any** combination of 3, 4, 5, 6 up to 30 cells at 1, 2, 3 up to 6 **or** 7 amperes.

It is a practical device demonstrated by actual service. **It** equips your garage for **efficient** battery charging at a **much** lower cost than any other reliable device of similar capacity.

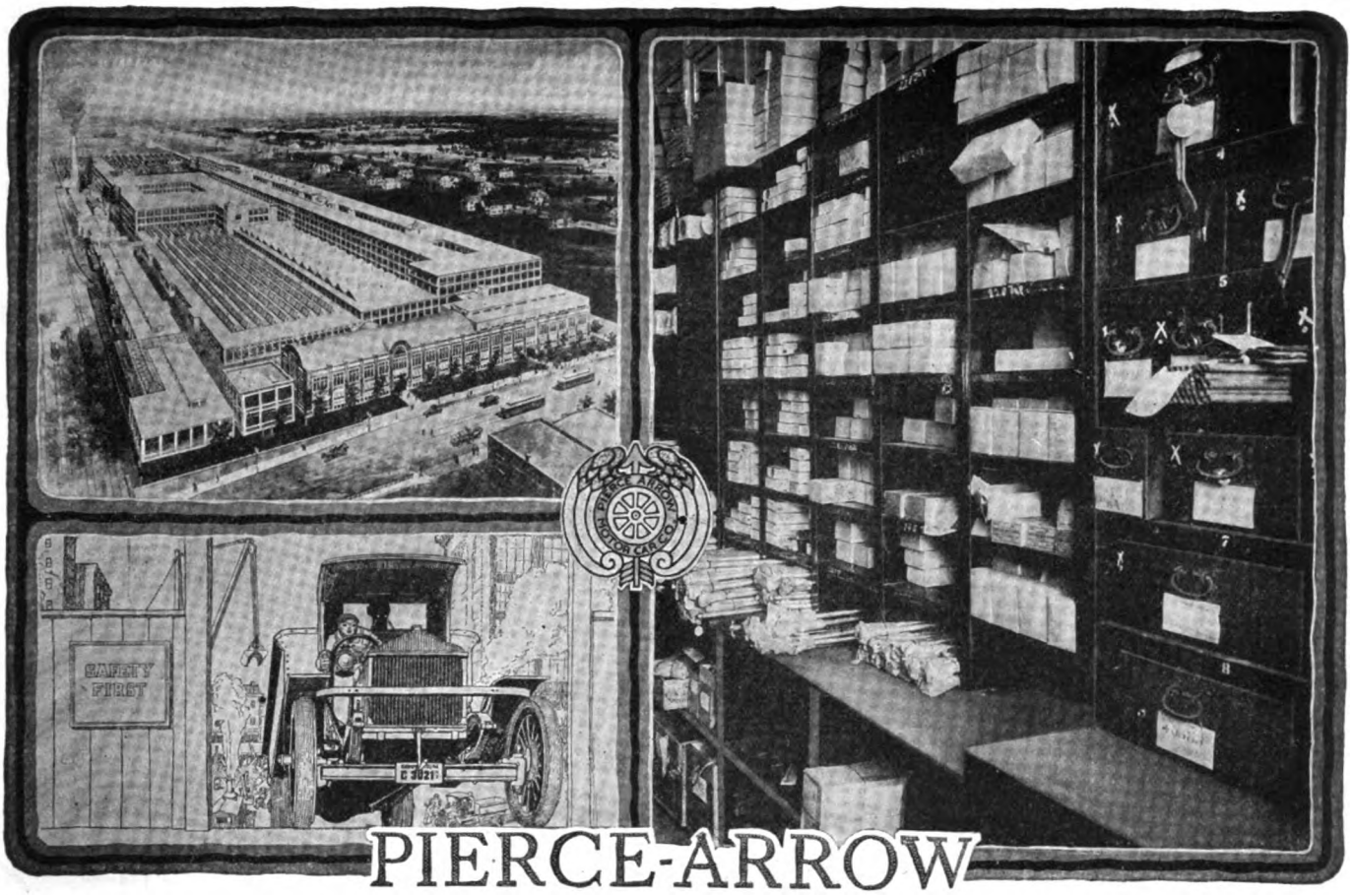
General Electric Company

SCHENECTADY, N. Y.

ASK OUR NEAREST OFFICE FOR BOOKLET B-3412

17520

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Has Adopted

Berger Steel Bins and Shelving

The Pierce-Arrow Motor Car Company stands among the highest in the fields of pleasure car and motor truck production. They are now using Berger Steel Storage Bins and Stock-room Shelving to keep their stock of tools, parts, accessories and materials always available, always fully classified and always in perfect order, with a minimum use of floor space.

The efficient modern plant has no use for the promiscuous stacking of materials in odd corners and fire inviting wooden boxes. It cannot afford to hold up any phase of production, while high priced workmen "hunt" for materials that should be easily accessible.

A few of the well-known concerns who are using Berger Bins and Shelving are Johnson Bronze, Eberhardt-Faber, Pennsylvania Railways, Chicago St. Railways, Goodyear, Smith Form-a-Truck, Methodist Book Concern, Champion Spark Plug, Hyatt Roller Bearing, Waukesha Motor, Ault & Wiborg, Ferro Motor, Johnson Harvester, Elliott Fisher, Stewart-Warner, Buffalo Scale, Arizona Copper Co., Hill Publishing Co., and the United States Government.

This list could be increased by hundreds for the strength, fire resistance, flexibility and unit construction of the Berger system of Bins and Shelving have made it a general favorite in all lines of business where satisfactory storage is a problem.

If Storage is still one of **your** problems write us now, today, while the difficulties and delays of inventory are fresh in your mind. Determine to make your next inventory easy and accurate through the use of Berger Bins and Shelving.

Write at once for our Catalog R.W., which illustrates the complete line of Bins, Shelving and Tire Racks.

The Berger Manufacturing Co., Canton, Ohio

Branches: Boston New York Philadelphia Chicago St. Louis Minneapolis San Francisco

Export Dept.: Berger Bldg., New York City, U. S. A.

THE ARMOR PLATE OF MODERN BUSINESS

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Stan

WITH resources and facilities of a vast and varied nature we are equipped to serve the motor car industry in many ways, usual and unusual.

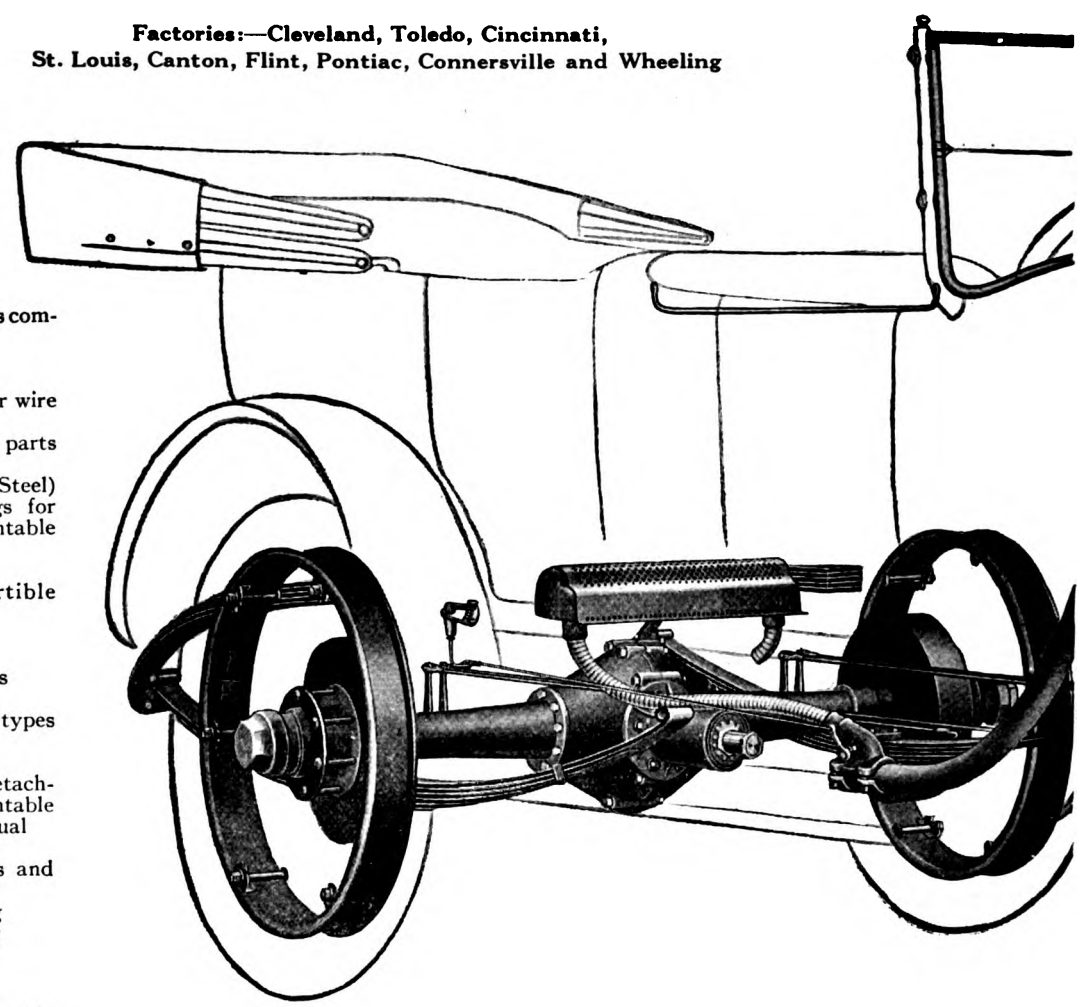
We seek to make your problems our problems and to evolve the solution thereof in a manner so distinctively successful as to establish mutually profitable relations that will prove enduring.

Tell us what problem you have that will put us to the test—now? Let us demonstrate our equipment to serve you.

Factories:—Cleveland, Toledo, Cincinnati, St. Louis, Canton, Flint, Pontiac, Connersville and Wheeling

For Motor Vehicles

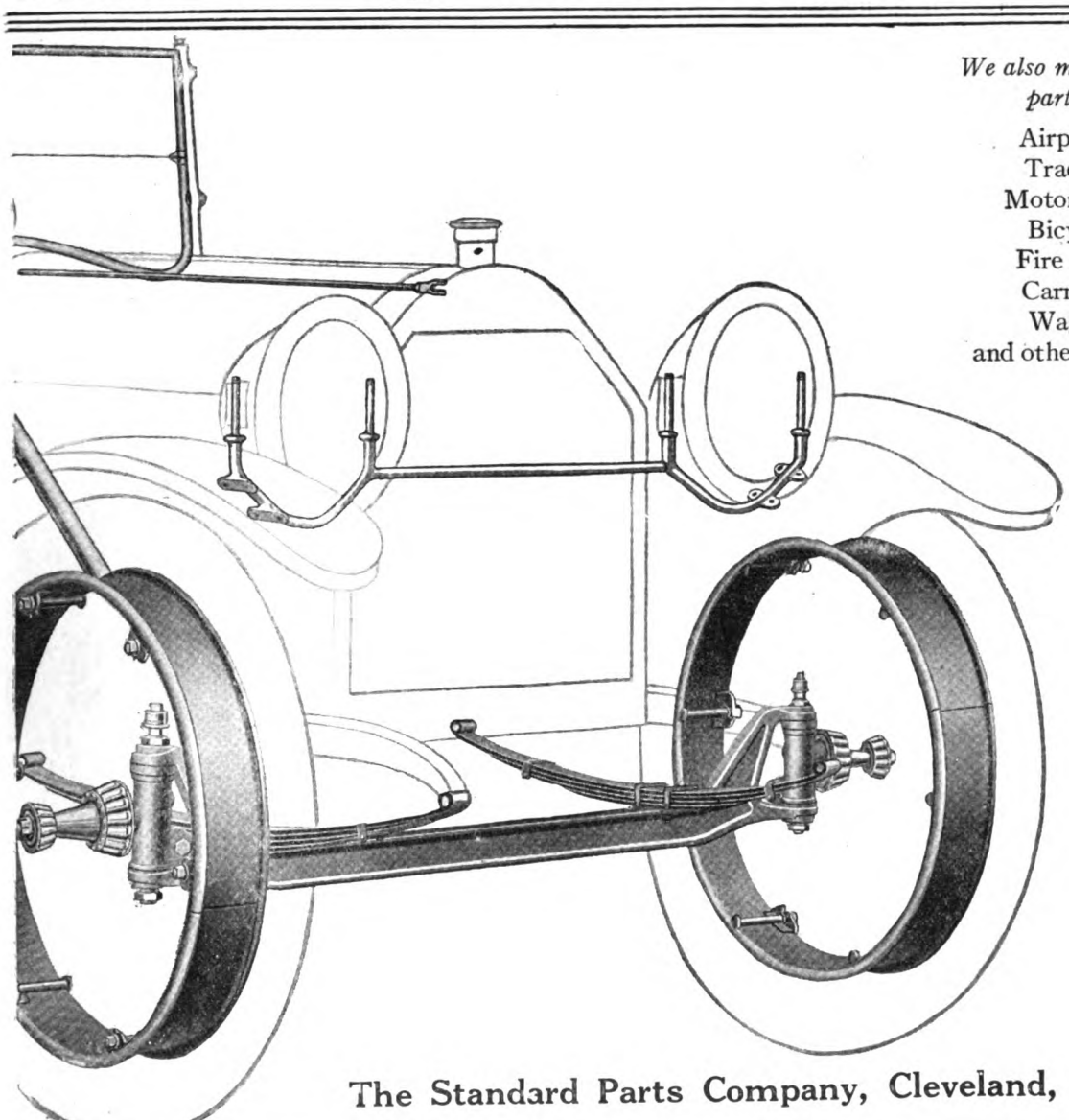
Axles
Axles (dead rear)
Bearings
Brake rod assemblies complete
Clincher rims
Cranks (starting)
Detachable rims for wire wheels, special
Electric welding of parts
Exhaust tubes
Felloe bands (S.A.E. Steel)
Flanges and fittings for attaching demountable rims
Formed Tubing
Forgings for convertible trucks
Heaters
Hubs
Ignition wiring tubes
Mast sleeves
Millimeter rims, all types
Oil tubes
Radiator rods
Rims—clincher, detachable and demountable for single and dual equipment
Starting gear rings and boxes
Straight steel tubing
Steering gear tubing
Springs (regular)
Springs (thin leaf)
Tail pipes
Tire bases in demountable and pressed on channels
Torsion tubes
Truss rods
Tubing (straight and formed)



The Standard Parts Company, Cleveland, Ohio

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dard parts



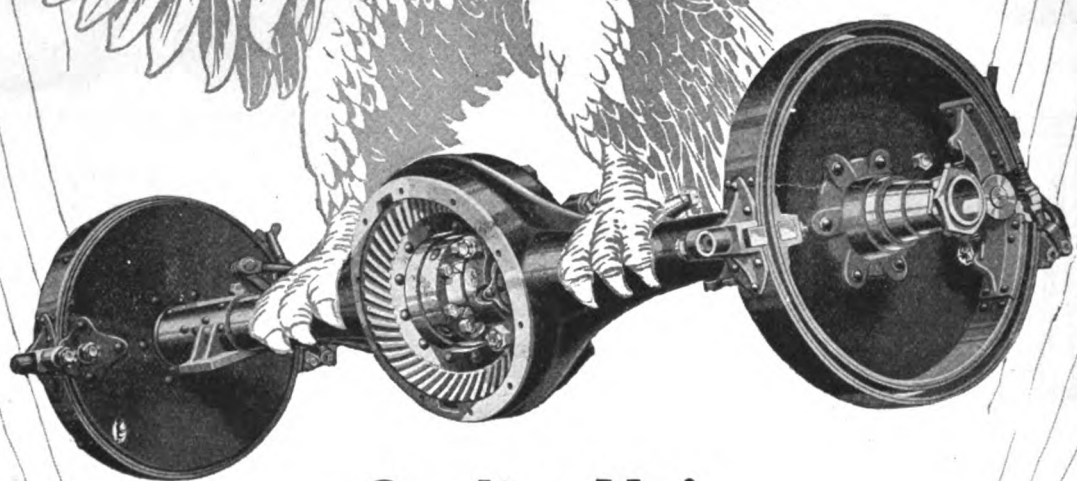
We also manufacture parts for

Airplanes
Tractors
Motorcycles
Bicycles
Fire Arms
Carriages
Wagons
and other vehicles

The Standard Parts Company, Cleveland, Ohio

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Columbia Axle



Quality Up!

We have successfully equalized the increased cost of our higher quality standards by applying scientific methods in the production of Columbia Axles.

Without excess cost for the excess value represented by better quality, we are able to furnish producers with better axles than are obtainable from any other source.

What are you paying for axles?

What are you getting?

Let us show you what you *could* get.

The Columbia Axle Company

Cleveland, Ohio

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"A Quality Tire at a Popular Price"

That's Mason. It has won its name for sturdy, comfortable, day-in and day-out Service.

Look to the speedometer for proof of Mason economy. Right along, it is recording that here, at last, is a popular-priced tire that really means more mileage.

Mason success is simply the story of honest quality, superior design and skilled workmanship.

Equip the car with Ribbed Treads on the front wheels, Lattice Treads on the rear wheels; and you have the ideal combination for service and comfort.

MASON

MEANS MORE MILEAGE

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Here's the Dealer's Opportunity

WITH prices of everything so high, motorists appreciate popular priced quality more than ever. Mason dealers will reap a rich harvest from the demand for Mason Tires this year.

Mason reputation is established. The Mason tire lives up to its reputation. The Mason-shod car helps towards economical up-keep. And the dealer who sells the Mason tire is selling the Economical tire.

Progressive dealers who seek a connection with a progressive organization will find it well worth while to become acquainted with the attractive Mason policy. A line to the factory will bring it.

Mason Tire & Rubber Company

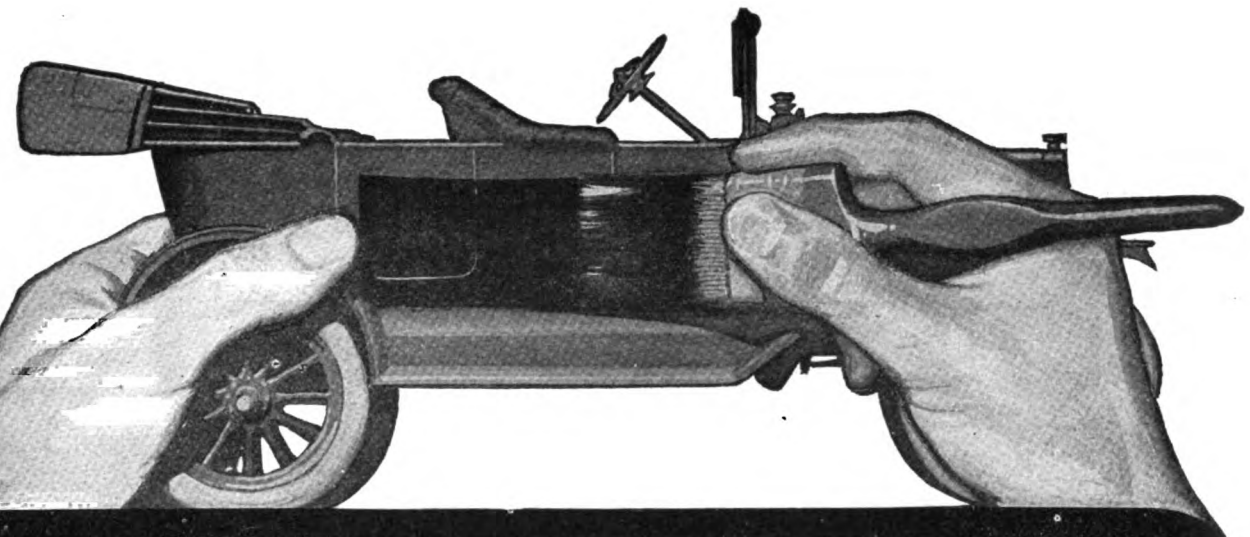
Factory and Home Office, Kent, Ohio

Cleveland	Akron	Chicago	New York
1806 Euclid Ave.	34 W. Market St.	2120 Michigan Ave.	28 W. 63d St.

Buffalo	Atlanta	Kansas City
834 Main St.	21 Houston St.	1732 Grand Ave.

MASON MEANS MORE MILEAGE

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Paint Your Ford for $1.25

This is the slogan that's being flashed all over the country in big, national magazines, through the mails and in the dealers' windows.

It has created a sensation in the Paint Trade.

Paint your Ford for $1.25. Hard for some auto owners to believe, you'll say. But it's true. One quart of Glidden Endurance Auto Finish Black which you sell for $1.25 at a good profit will more than cover any medium-size car. It will give a finish like new—brilliant, tough and lasting.

Only a short time is required for application, and in less than 48 hours the car is ready for use. Think of the sales possibilities. There's nothing better for carriages and buggies.

Thousands of *new cars* the world over are finished with Glidden Varnishes. Glidden workmen know auto finishing requirements. There's no experimenting necessary. They know what is needed to do the trick.

This Glidden performance means good business for you. There are five sensible colors besides black in the line. All good sellers, all good profit-makers.

Write for Our Special Offers

We have prepared four special offers for the purpose of introducing this new member of the Glidden Family. These offers all include the complete line of Glidden Endurance Auto Finishes, together with our quick-selling advertising features. One of them will surely fit your requirements.

Drop us a line for further details. Do this today, because the *present prices are subject to change*, and there's much for you to gain by early action.

THE GLIDDEN COMPANY

Manufacturers of Glidden Pale Wearing Body Varnishes, Quick Rubbing Varnishes, Fender Finishing Enamel, Colored Rubbing Varnishes, Red Metal Primer, etc.

Cleveland, Ohio

Factories: *Cleveland—Toronto*

Branches: *New York—Chicago—London*



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MR. Dealer: Don't let Old Demon Trouble get a "permanent place" on your shelves. He is coming—sure—sneaking in behind the innocent-looking spark plug which has no name or reputation but wants *you* to be responsible for him. Let the old reliable "trouble-shooter" AC come in and see how quick he'll put the other fellow to rout—and Old Trouble will go along with him, never to return.

Here are the highest references a spark plug maker can give:

List of Manufacturers Using

AC Spark Plugs

The Standard Spark Plug of America

Cadillac	Buick	McFarlan	Jackson	American-La France	Federal Trucks
Pierce-Arrow	Oakland	Paterson	Apperson	Henderson Bros.	G. M. C. Trucks
Packard	Oldsmobile	Davis	Anderson	Old Reliable Trucks	Netco Trucks
Marmon	Nash	Lexington-Howard	Phianna	Gabriel Trucks	Sandow Trucks
Hudson	Kissel Kar	Scripps-Booth	Locomobile	Gramm-Bernstein Trucks	Signal Trucks
Chalmers	Premier	Crane-Simplex	Disbrow	Moreland Trucks	Brockway Trucks
Hupmobile	Knox	Stearns-Knight	Daniels	Wilcox Trux	Samson Tractor
Chandler	Abbott	Saxon	Westcott	Sterling Trucks	Acme Trucks
Haynes	Pathfinder	Stutz	Monroe	Republic Trucks	Menominee Trucks
Chevrolet	White	National	Singer	Diamond T Trucks	Riker Trucks
Dort	Delco-Light	Velie	Dodge Brothers	Four Wheel Drive	Stewart Trucks
Cole	Murray	Stephens	McLaughlin (Canada)	Titan Truck	Wisconsin Trucks
Reo	Case		Dorris	Maxim Trucks	RobinsonFireTruck
Paige	Economy		Duesenberg	Case Tractors	La Crosse Tractor
Peerless	Jordan		Hatfield		Advance-Rumely Tractor
Pilot	Liberty				Lombard Tractors

Champion Ignition Company—Sole Manufacturers, Flint, Michigan

AC Carbon Proof

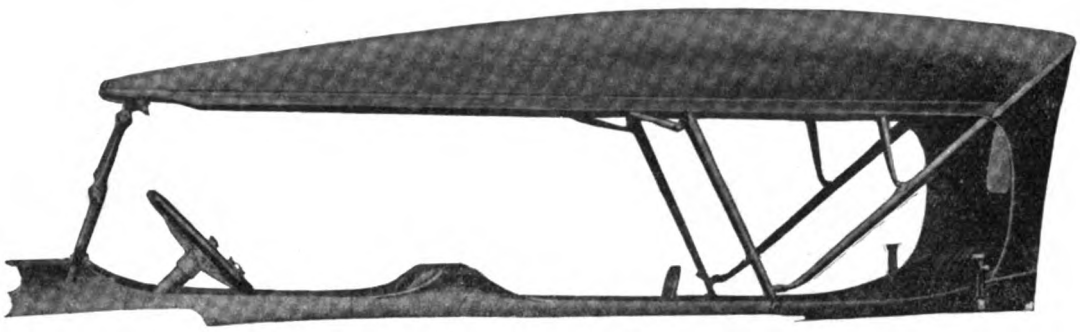
For Fords, Overlands and Studebakers





⅞ in. Regular for Maxwells A C Titan

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A Dridek Top Does Help to Sell Cars

Dridek a Big Help to Dealers Right Now

Next spring is going to see a much greater business in **used cars.** Dealers who recognize this **now** and **prepare for it** are wise. They are going to get the "jump" on the other fellows.

The **best looking** used cars sell best; cars with good looking tops and high grade, rich looking upholstery.

We can help you tremendously along these lines. We have just the materials best suited to your needs, and our prices and terms will help you make this business pay.

Write for price list and samples.

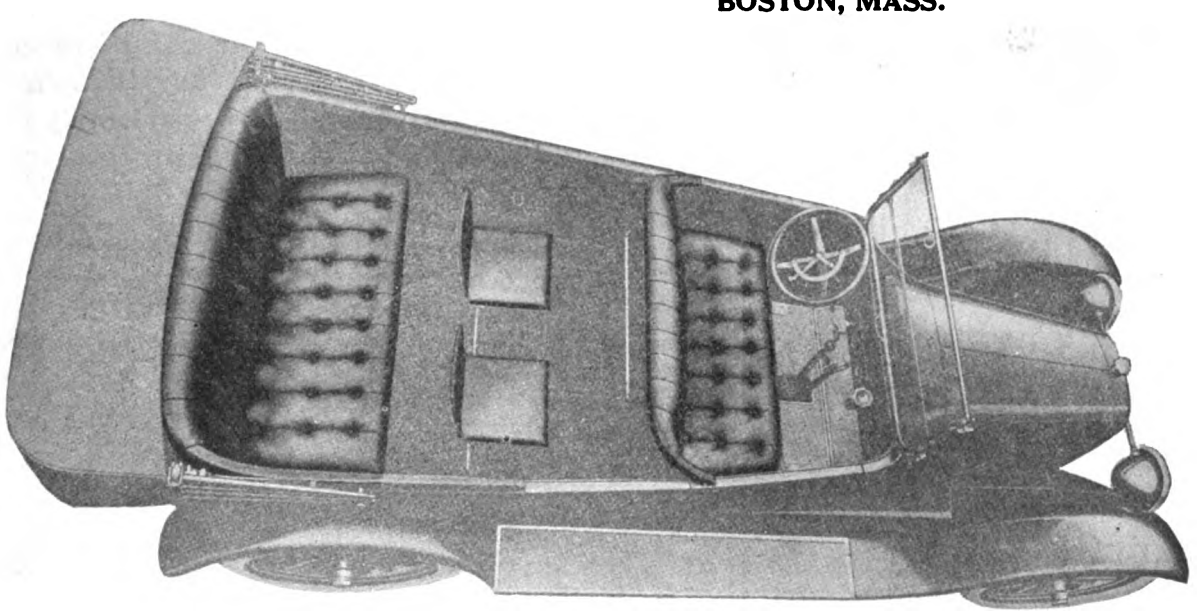
TRADE DRIDEK MARK REG.

The Most Remarkable Top Material Yet Produced

L. J. MUTTY COMPANY

BOSTON, MASS.

Dridek Upholstery Makes the Car Look New



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The Tire That Goes Out and Gets Business



Every time you sell a Century-Plainfield Tire you're sending out a salesman.

The man who bought comes back—certainly—he's a booster, but better yet—his friends come, too.

Century-Plainfield popularity is founded on performance. They have an inbuilt capacity to negotiate extra miles. Under all conditions they give the very limit of wear.

"Quality First"—that's the Century-Plainfield slogan and on that formula they're built.

The very finest quality of materials in the world go into their makeup and these are combined and fashioned into shape by time-seasoned experts.

No whit of anything that would make for better tires has been neglected.

Century-Plainfield agencies may be secured by high class dealers—and with the privilege of handling this great line will go the complete co-operation of the Century-Plainfield organization and an opportunity for generous and continued profits.

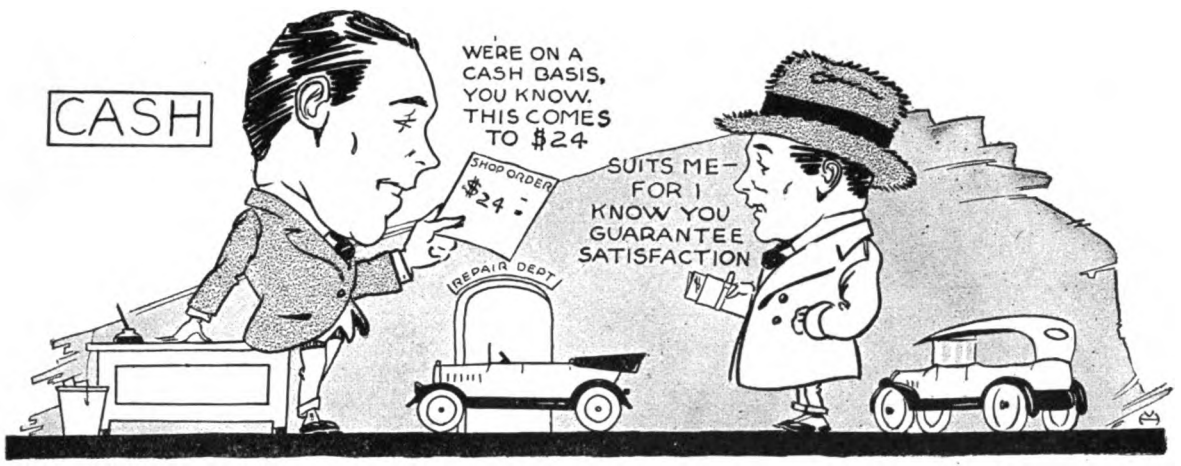
CENTURY-PLAINFIELD TIRES

CENTURY-PLAINFIELD TIRE CO.,

Century-Plainfield Tire Company, a subsidiary of the Rubber Insulated Metals Corporation, Exclusive manufacturers of the RIMCO Rubber Products by the EL-CHEMCO process.

Plainfield - - - - - - - - - New Jersey

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Short Accounts Make Long Friendships

Your only reason for being in business is to sell goods, or service, or both.

Each costs you real money, so the more accounts you carry the greater your capital must be.

Get a larger proportion of cash this year than you did last.

Judging credits requires special training. Have you had it?

Patrons are quick to see the good business principle underlying cash transactions.

They know the cost of doing business never was greater.

They know the efficiency they demand can only be furnished by well-paid labor.

They know that the worth of your stock of accessories to them depends upon your standing with wholesalers and manufacturers.

Every time you discount your bills you strengthen that standing with your supply houses and take a better profit for yourself.

So cash is the life blood your business must have to grow. Don't be afraid to ask for it—the argument is all on your side.

Send for your copy of our Booklet—by an expert—on "How to Run a Garage."

Manufacturers, Jobbers and their Salesmen are anxious to co-operate with you. Ask them for ideas.

National Association of Automobile Accessory Jobbers

WM. WEBSTER, Commissioner

CITY HALL SQUARE BLDG. CHICAGO, ILL.

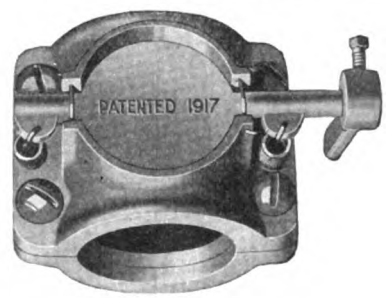
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For Every Ford Car In Service

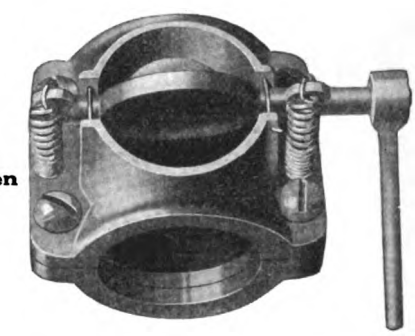
"AMPECO" Pistons



"AMPECO" Cut-Out



Closed



Open

Ampeco Pistons
Are a Nation-Wide Success

Business on AMPECO Pistons is bigger this winter than ever before. More Ford owners are demanding this installation. For economy a smoother running Ford with greater power and increased speed without main bearing troubles they have no equal. **Ford owners know this—and buy.**

Ask Us About the New "Ampeco" Cut-Out

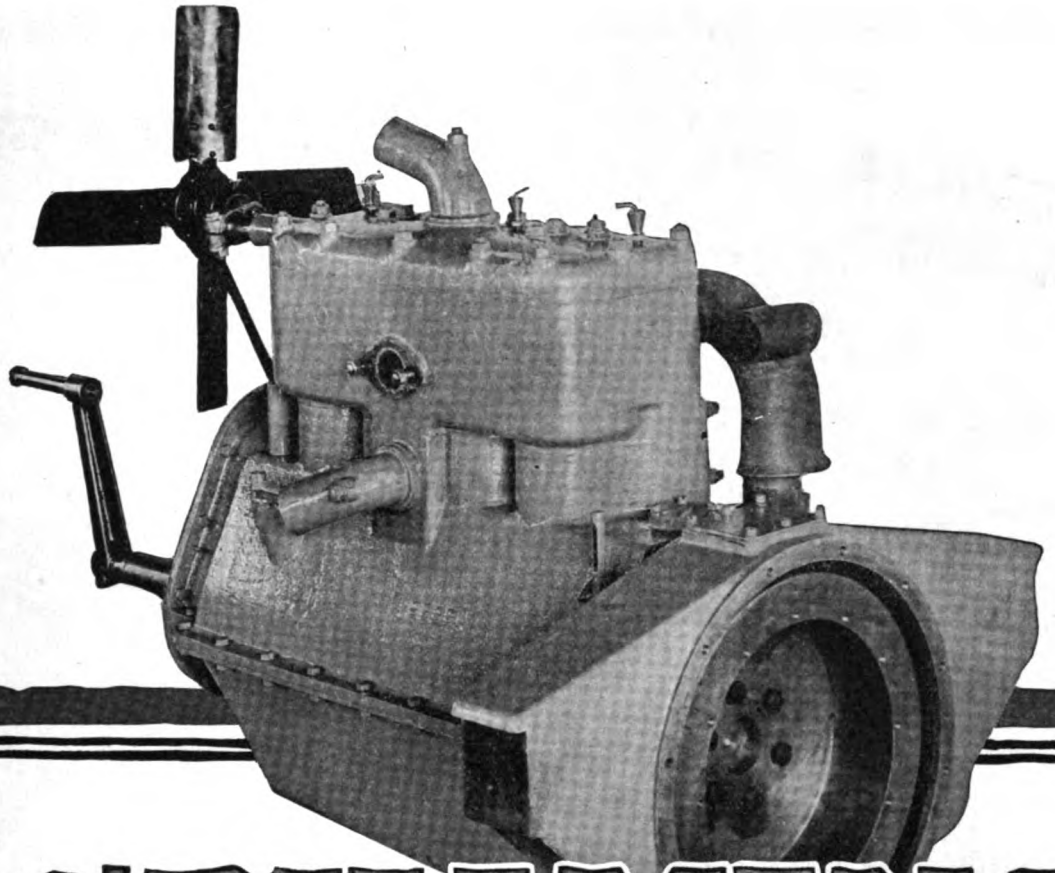
Valves and journals are all cast in one piece. The valve is thick and has beveled knife edges so that the valve, when closing, is constantly making a closed joint that absolutely insures a tightly closed valve at all times. The longer the cut-out is used, the tighter the valve. The springs are of such tension that the use of the large spring is unnecessary. No pulley is required. MADE IN ALL SIZES, and selling fast.

Write today for complete information on the entire AMPECO and MARSHALLTOWN Lines.
Best service for owners. Liberal dealer discounts.

American Machine Products Co.
Marshalltown, Iowa

Fulton Sales Co., Exclusive Sales Representatives **910 So. Michigan Ave., Chicago**

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SPILLMAN 4

3¼ × 5 — 4 CYL

SPILLMAN ENGINES help tremendously to sell the cars in which they are installed.

The Dealer can truthfully say of such a car that it is free from engine trouble. He can **dwell** upon the engine instead of passing it off with generalities.

The
SPILLMAN "4"

for speed, flexibility, and power; for ability to climb hills, pull through mud and throttle down in heavy traffic, is unequalled by any other motor in its class.

He can positively state that his car has an engine whose lubrication system is the most efficient known; whose cooling is positive at all speeds; whose parts are readily accessible, simple, rugged, absolutely dependable and enduring.

And experienced motorists, to whom his customers go for advice, will bear him out in this. They **know** the Spillman Engines.

HERSCHELL-SPILLMAN COMPANY

Builders of Automotive Motors

North Tonawanda New York

Digitized by Google



Make your pistons gas tight

The MUNGER "ALWAYS TIGHT" PISTON RING OUTFIT—

for FORDS
8 "Always Tight" Rings (Regular Size)
4 "Always Tight" Rings (Over Size)
1 Regrooving Tool
1 Ring Insertion Tool


Ready to insert the Munger Re-grooving Tool to true-up a worn piston groove


The Munger Re-grooving Tool in position for cutting. Testing width of groove with an over-size ring


A Munger "Always Tight" Piston Ring being slipped over the Munger Ring Insertion Tool


Showing how easily Munger "Always Tight" Piston Rings can be placed in the piston grooves with the Munger Ring Insertion Tool

MUNGER "Always Tight" Piston Rings



The MUNGER ALWAYS TIGHT EXPANSION JOINT

When piston grooves become slightly worn it is impossible to fit any rings in them gas-tight without first truing-up the grooves. With each complete set of Munger "Always Tight" Piston Rings is one oversize ring for each piston (to be used in worn grooves) and a Munger Regrooving Tool with which worn grooves can be straightened quickly and accurately without resorting to expensive lathe work, and without even disconnecting the piston from the connecting rod.

Munger Piston Rings *always* remain compression-tight.

These unique rings quickly conform to the shape of any cylinder and retain their perfect fit until completely worn out.

The wonderful compression-holding power of these simple one-piece rings is due to their scientific design and their accuracy of manufacture. The Munger Expansion Joint, so simple, yet so efficient—the patented process of peening, which makes these rings fit the walls of any cylinder—the minute oil grooves, which cause these rings to seat themselves almost immediately—are distinctive features that make Munger "Always Tight" Piston Rings superior to all others.

They are the easiest of all rings to install. With the Munger Ring Insertion Tool even a novice can place them in the piston grooves without breakage or the slightest trouble. And Munger Rings are the most inexpensive because they are practically wear-proof.

List price for all sizes up to 3¼ in. diameter, $1.25 per ring.
With each complete set of rings a *Munger Piston Regrooving Tool* and a *Munger Ring Insertion Tool* are supplied without extra charge.

Splitdorf Electrical Co., Newark, New Jersey

Splitdorf Branch Houses and Service Stations:

Atlanta,	10-12 E. Harris St.	Minneapolis,	816 Hennepin Av.
Boston,	68 Brookline Av.	Newark,	278 Halsey St.
Chicago,	64 E. 14th St.	New York	7 West 61st St.
Dallas,	402 Ervay St.	Philadelphia,	210 N. 13th St.
Detroit,	1295 Woodward Av.	Pittsburgh,	5943 Ellsworth Av.
Kansas City,	1827 Grand Av.	San Francisco,	1022 Geary St.
Los Angeles,	1215 S. Hope St.	Seattle,	1628 Broadway
		Toronto,	469 Yonge St.

Accessory Dealers and Garage Men!
Any jobber will supply you with Munger "Always Tight" Piston Rings. Order them now!

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TUNGSTEN

TRADE MARK REGISTERED

SPARK PLUG

ENDURANCE



Always on the Job

TUNGSTEN MFG. CO.

MARSHALLTOWN IOWA

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An accessory line distinguished by trade protection and user satisfaction

MORE than ever this year Johns-Manville will depend on the trade for the distribution of accessories, which is the reason why we again emphasize our trade protection policy. We sell only to the recognized jobber. He stocks the retail dealer—and the margin he allows even on very small orders is liberal. This means quick turnovers, frequent re-orders and more profit for all concerned.

Because Johns-Manville accessories are of a satisfying quality—consistently advertised—they are easy to sell to the ultimate consumer. To prove this it is only necessary to point to Johns-Manville Non-Burn Brake Lining, the Johns-Manville Fire Extinguisher and the Johns-Manville Speedometer. Each excels in its own field through perfection of design and dependable quality. And this year we will again advertise these advantages consistently. Ask your jobber or our nearest dealer for complete information.

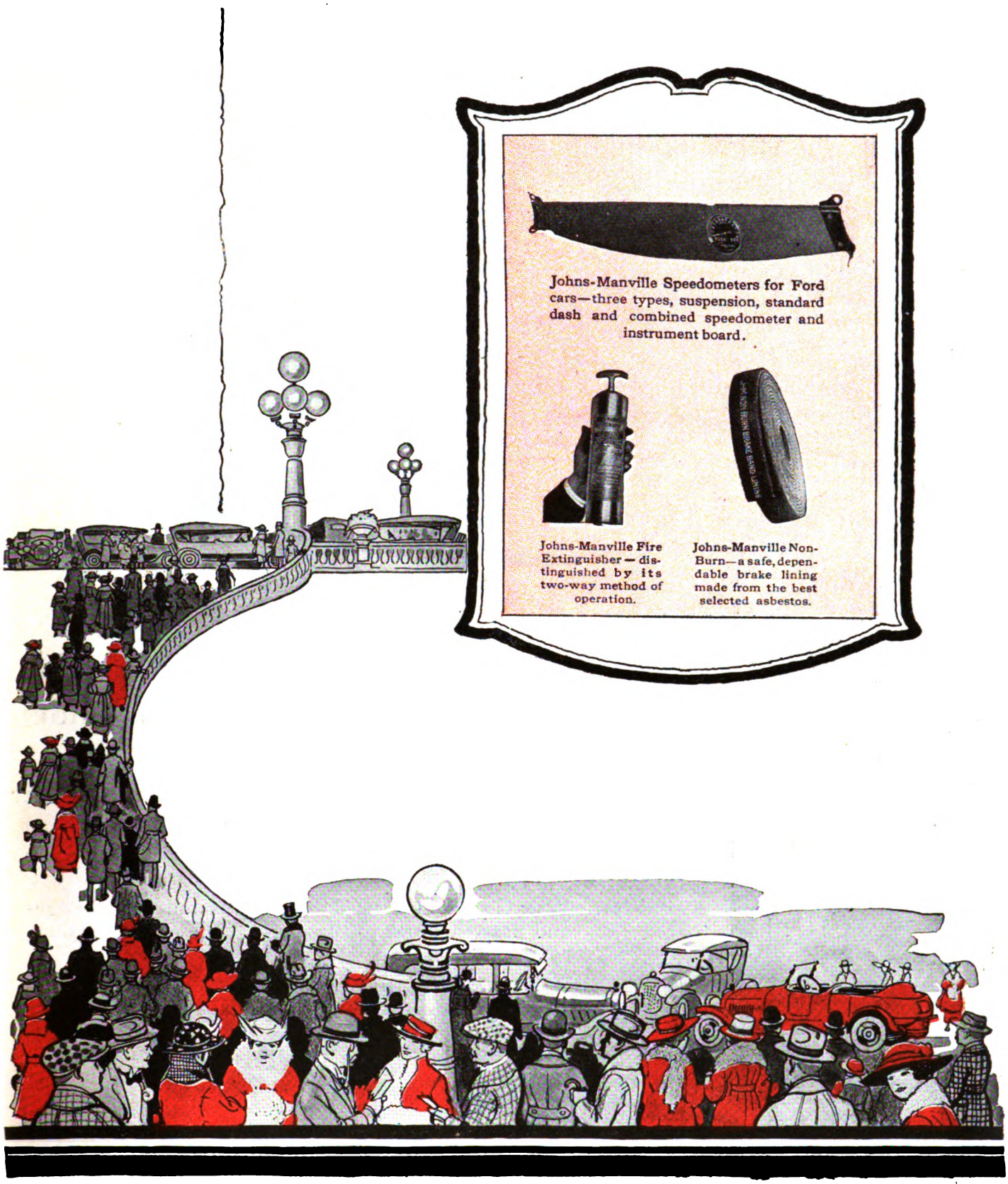
H. W. JOHNS-MANVILLE CO.
NEW YORK CITY
10 Factories—Branches in 60 Large Cities



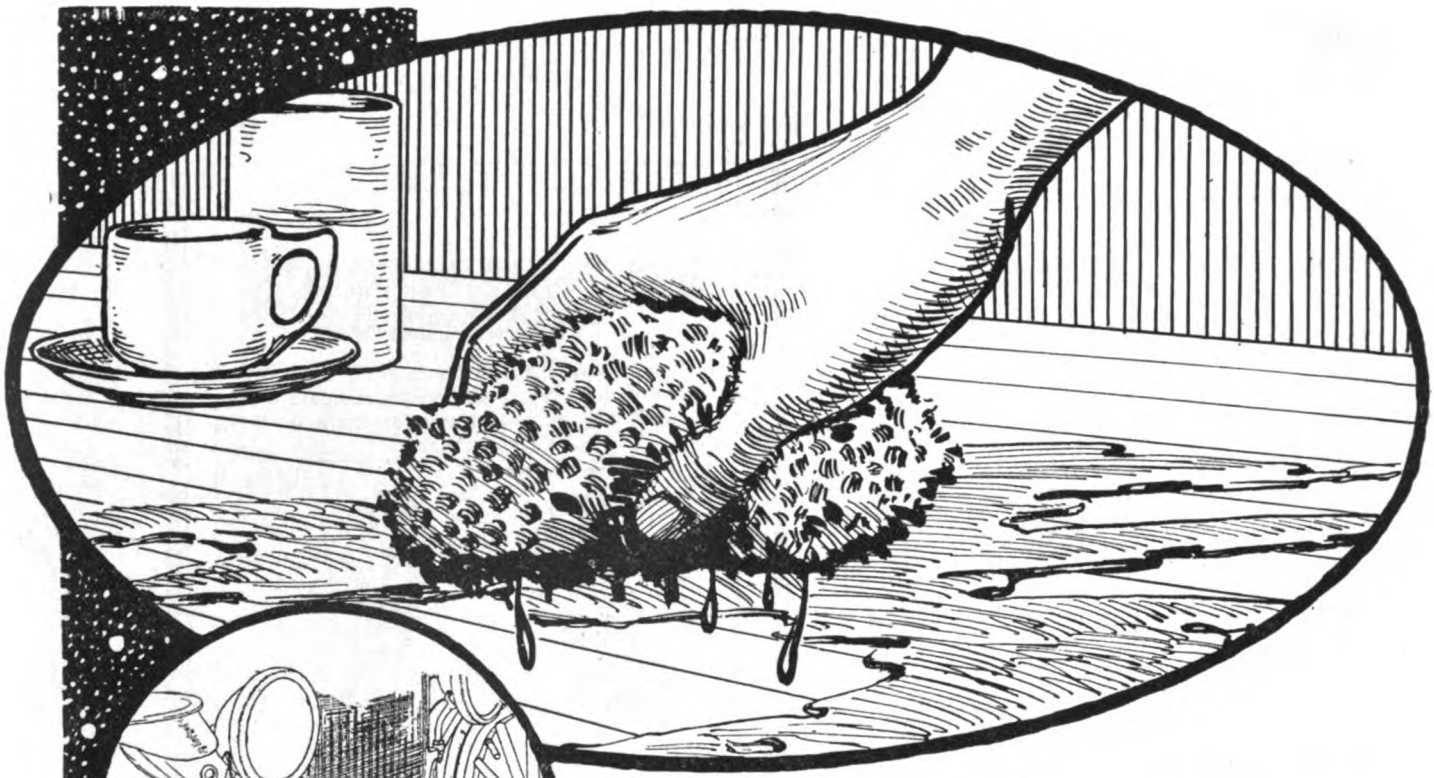
JOHNS-MANVILLE SERVICE COVERS THE CONTINENT

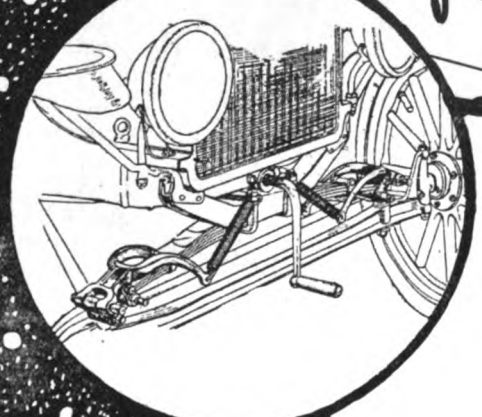
JOHNS—

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$10 Per Set of 4

The Original Double Arm SHOCK ABSORBER W&C For FORD CARS

W&C

The Original Double-Arm Shock Absorbers For Fords

Absorb Shocks Like a Sponge Absorbs Water

Somewhere between the road and the passenger all the roughness is smoothed out when Ford cars are equipped with W & C Shock Absorbers.

W & C's take up the sharp jolts, round off the edges and pass them on to the body of the car as gradual, rolling swells.

It is significant to know that over 100,000 sets of W & C Shock Absorbers are in daily service on Ford cars—and that they make as much difference in the riding qualities of old Fords as of new ones.

In fact, thousands of old Ford cars have practically been kept on the road, by the installation of W & C equipment.

It is the one shock absorber that does more than owners expect. When they ask you for shock absorbers, what they mean to say is "W & C."

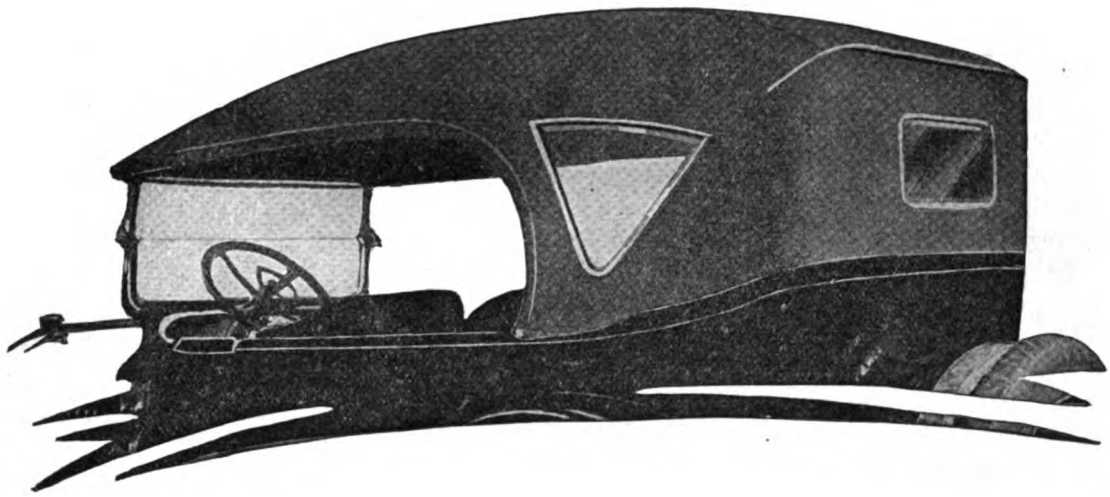
Ask your Jobber's salesman. He knows and has W & C.

P. H. Webber Co.

Hoopeston Illinois

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DU PONT AMERICAN INDUSTRIES



RAYNTITE—The Top That Stays New

Mail This Coupon M.W.
marking X before subject that interests you.

	Rayntite Top Material		Fairfield Rubber Cloth
	Motor Fabrikoid		Industrial Dynamites
	Craftsman Fabrikoid		Blasting Powder
	Truck Special Fabrikoid		Blasting Supplies
	Marine Special (U. S. Stand.)		Farm Explosives
	Book Finish Fabrikoid		Hunting
	Fabrikoid Sheeting		Trapshooting
	Py-ra-lin Toilet Goods		Anesthesia Ether
	Challenge Colors		Leather Solutions
	Novelty Sheeting		Soluble Cotton
	Transparent Sheeting		Metal Lacquers
	Py-ra-lin Rods & Tubes		Wood Lacquers
	Py-ra-lin Pipe Bits		Mantel Dips
	Py-ra-lin Specialties		Bronzing Liquids
	Sanitary Wall Finish		Pyroxylin Solvents
	Town & Country Paint		Refined Fusel Oil
	Vitrolac Varnish		Commercial Acids
	Vitrolac Stain Finish		Alums
	Flowkote Enamel		Saltpetre
	Liquid Light for Mills		Wood Pulp
	Antoxide Iron Paint		Pigment Bases
			Tar Distillates
	Auto Enamel		Dyes and Bases

Name

Address

City **State**



Visit the Du Pont Products Store,
1105 Boardwalk, Atlantic City, N. J.

A grey, dingy, faded top will make any car look passè. Don't sell your car because the top looks shabby. Get a new top—a top that stays new.

DU PONT FABRIKOID RAYNTITE

never fades. It is water, grease, stain and dust proof—and as cleanable as glass. When soiled by travel, plain water will restore its beauty. It is guaranteed for one year not to leak, crack nor peel but built to last the life of your car.

Any good top maker can re-top your car with Rayntite.

Check Rayntite in the coupon and send for samples, booklet—and list of cars on which Rayntite is furnished as regular equipment.

Du Pont Fabrikoid Company

World's Largest Makers of Leather Substitutes

Wilmington - - - Delaware

Works at Newburgh, N. Y., and Fairfield, Conn.

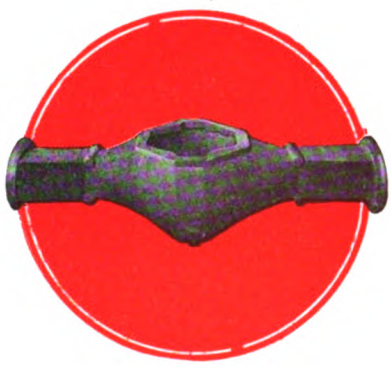
Canadian Office and Factory, New Toronto, Ont.

The Du Pont American Industries are:

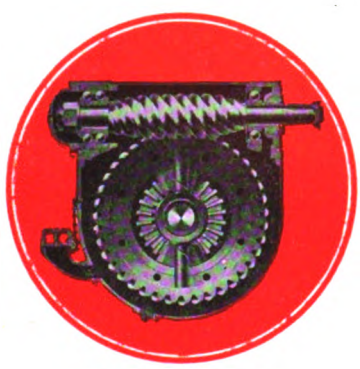
E. I. Du Pont De Nemours & Company, Wilmington, Delaware. Explosives.
Du Pont Chemical Works, Equitable Bldg., New York. Pyroxylin and Coal Tar Chemicals.
Du Pont Fabrikoid Company, Wilmington, Delaware. Leather Substitutes.
The Arlington Works, 725 Broadway, New York. Ivory Pyralin and Cleanable Collars.
Harrisons' Works, Philadelphia, Pa. Paints, Pigments, Acids and Chemicals.
Du Pont Dye Works, Wilmington, Delaware. Dyes and Dye Bases.

DU PONT

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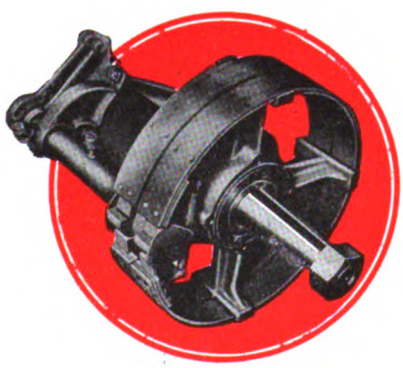
Point for Point There is no better Truck Axle built than Sheldon



1 THE SHELDON WORM-GEAR AXLE is encased in a *one-piece* housing. This means that instead of the various parts being cast separately and then welded together, the complete housing is cast in one mould. By virtue of this one-piece construction, there can be no loosening of parts, regardless of road or operating conditions—an extremely vital factor to consider where commercial haulage is concerned.

The one-piece axle housing furthermore protects and strengthens the working parts in a manner that cannot be duplicated in any other form of construction.

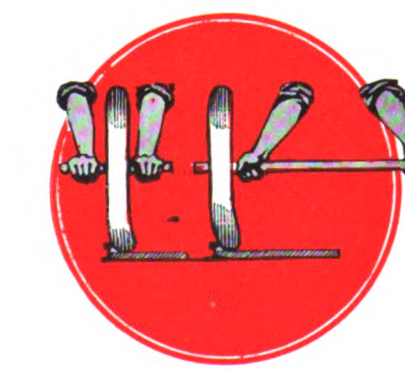
It requires from 90 to 100 tons hydraulic pressure to bend the housing double; even then it does not crack, owing to the extreme toughness of the metal used—the result of careful and expert annealing.



2 THE STRAIGHT OR DAVID BROWN TYPE OF WORM is used in the Sheldon Axle because it has proved to be more silent and more double, as well as the simpler of the two types of worm generally in use. Neither use nor abuse can make it noisy. Forged from the finest steel, and heat-treated to wear-proof toughness, the worm threads are machined to microscopic limits.

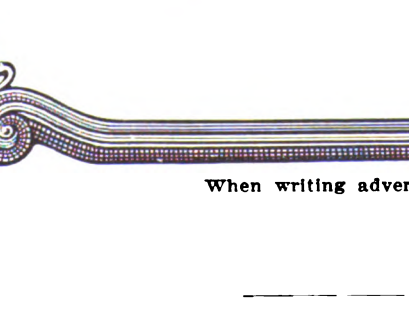
The worm carrier, in which the worm is mounted, is a substantial casting, machined so accurately that later adjustment is never necessary.

The lower section of the worm wheel runs in a bath of oil in the base of the housing. This is splashed through the worm shaft bearings, maintaining a constant film of oil between the surfaces of the worm threads and the teeth of the worm gear.



3 SHELDON BRAKES, are made ultra-efficient, to insure complete safety of operation. This is accomplished by means of double external expanding type of brake—simple in operation, self intensifying, easily adjusted, exceedingly powerful, quick-acting and unfailingly sure.

Sheldon brakes have a generous bearing surface and are doubly enclosed to thoroughly protect the bearing surfaces from dirt, grit and other foreign substances. The brakes are easily accessible for relining. When it comes to the question of adjustment, it is not necessary to touch the brakes themselves; they are tightened merely by moving back the sector to which the brake pull lever is bolted, and inserting the lever bolt in the next hole.



4 SHELDON AXLES are of the semi-floating wheel bearing type. Consequently Sheldon axles are more simply constructed by reason of fewer parts, lighter in weight for the same reason, yet have a greater carrying capacity than the full-floating type. This simplified construction means greater accessibility and the greater carrying capacity means greater economy of upkeep and operation.

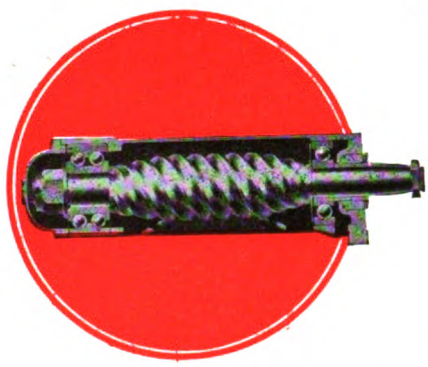
The wheels in the Sheldon axle are mounted on an extra heavy axle shaft which bears the dead load of the truck. In the full-floating type the wheels are mounted directly on the less dependable tubular extension of the axle housing—a construction in which any slight bending, as a result of skidding or other causes, requires an expensive replacement—generally a factory repaid job.

But the greatest advantage of Sheldon semi-floating construction is graphically shown in the sketch opposite. To the left (Fig. 1) is illustrated the simple leverage angle of the full-floating type against the side strains at the wheel rim, and to the right (Fig. 2) is shown the wide leverage angle of the Sheldon semi-floating construction. Obviously the latter incorporates the correct principle for resisting side strain.

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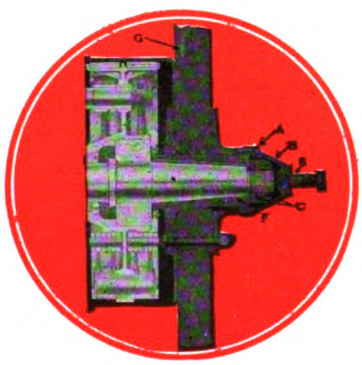
BALL BEARINGS offer less friction and have greater load capacity than any other type of anti-friction device invented. This is borne out by innumerable tests, conducted under every imaginable condition. This is particularly true under the wedging action of a thrust load of such proportions as is exerted on the worm. Furthermore, in the case of the worm, the use of the ball bearings is the only way whereby the elongation of the worm due to frictional heat can be perfectly compensated. This is accomplished by leaving the annular ball bearing placed at the front end of the worm, free to float.

Finally, and of great importance, ball bearings do not require the adjustment which other bearings, by their nature, must receive.



THE SHELDON WHEEL BEARINGS are enclosed in the main axle housing. They are thus protected against grit and other foreign matter when the wheel is demounted. At the same time the bearings are easily accessible, it being necessary only to remove the wheel and then the bearing retainer in order to get to them.

The shape of the hub itself gives greater strength where greater strength is needed, and furthermore allows the easy demounting of the wheels, thus making a change of tires quick, easy and economical.

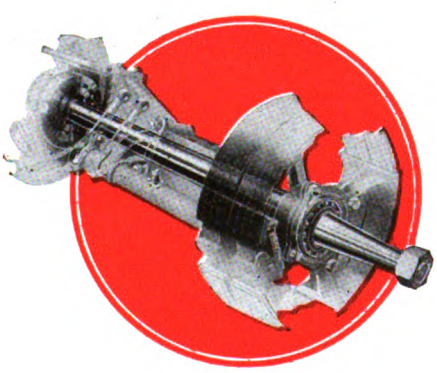


NOT A SINGLE SHELDON DIFFERENTIAL, as far as we can learn has ever worn out. Notice how the gear teeth instead of being concave in design are broad and thick at their base, this providing ample protection against gear stripping and quick wear. Each bevel gear is supported *on both sides* by an intended hub inserted into a bearing ring in the spider. This insures absolute alignment and eradicates all possibility of faulty performance. Strength is further continued with efficiency in the hexagonal broaching of the differential gear to receive the axle shaft. A square insertion would permit quick wear, a splined insertion would weaken the metal. Sheldon design avoids both weaknesses.



THE BIG, HUSKY SHELDON DRIVE SHAFT is a forging 3½% nickel steel; accurately proportioned, expertly heat treated, and ground to size.

The distribution of strain along this length dictates a taper from the differential to the wheel bearings—thus a uniform strain is secured throughout and ample strength is provided where needed.



SHELDON AXLE & SPRING CO.
WILKES-BARRE, PA.

Builders of

SHELDON
WORM DRIVE AXLES

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This Old Woman Lost 1c on Every Apple She Sold —and Thought She Made a Profit Because More People Bought Her Fruit

Not so very many years ago in Manchester, England, there was an old apple woman who bought her stock at the equivalent of 6c. an apple and sold it for the equivalent of 5c. When asked how she made any profit she replied: "I make it up on the number I sell."

Of course, her business was a failure.

Today, much nearer home, there are innumerable good business men practically duplicating the policy of the old apple vender. They are giving away "free air" that costs them money to produce—and they look for profits from chance sales to an increased number of "free air" customers, whom they serve at an ever-increasing loss.

When You Stop Giving "Free Air" at a Loss and Install an ECO Prepayment Automatic Air Station Your Profits Will Begin



Eco Prepayment Automatic Air Station

The ECO Prepayment Automatic Air Station collects 5c. in advance from each air customer. It supplies him with air for as many tires as he carries, and water for his radiator in addition, if he needs it.

When he drives up to your door what he wants is service. For 5c. he gets it. He is glad to buy the superior service of ECO. He prefers it to inferior service free.

You have a right to make profits in every department in your garage. Motorists must have air. Most of them—all of them who buy enough to make their patronage pay—willingly pay 5c. for air. They prefer to.

Write for complete details.

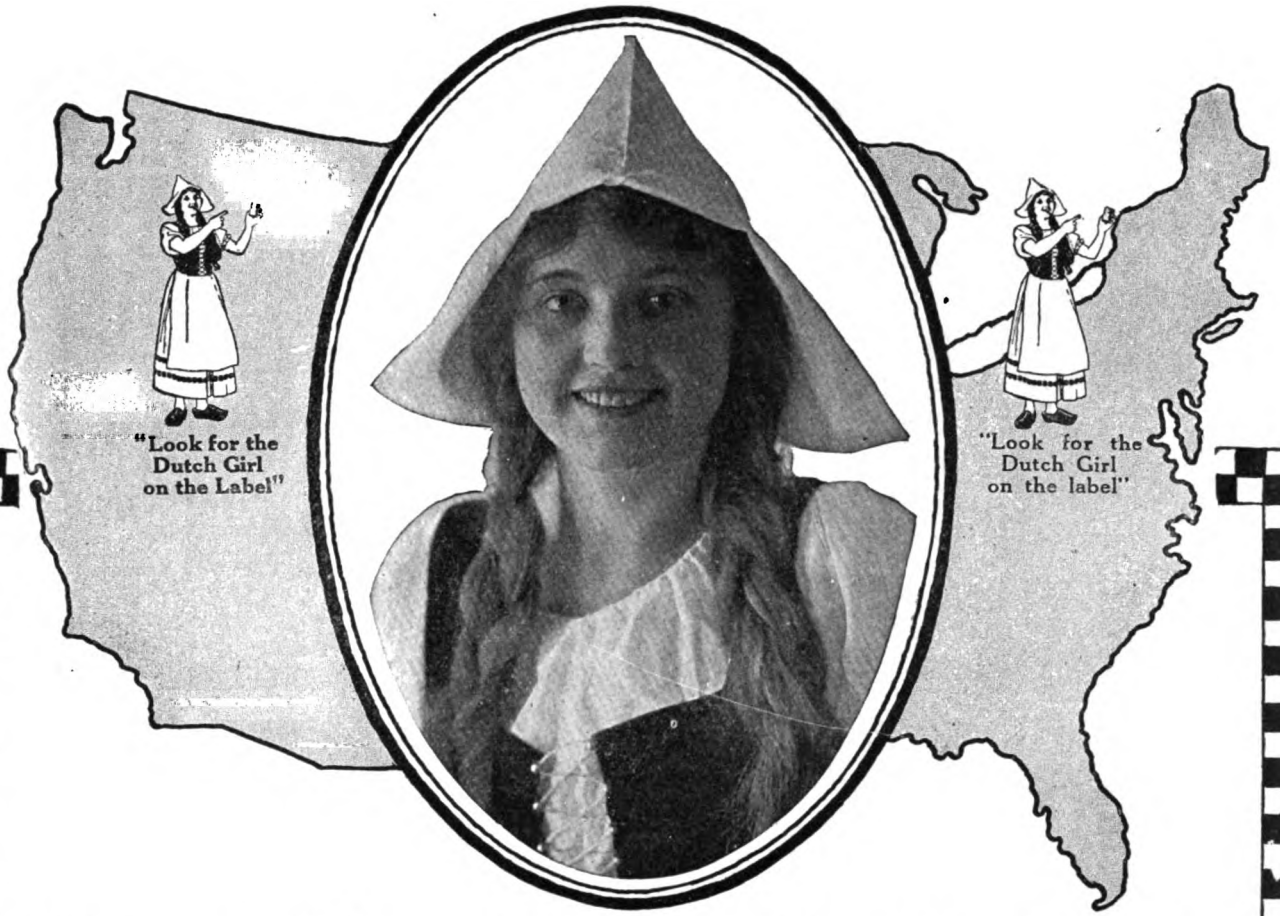
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SOLD BY

ELECTRIC APPLIANCE COMPANY

Chicago San Francisco Dallas New Orleans

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Accepted Standard from Coast to Coast

All important jobbers, dealers and supply stores in the United States know the enviable reputation of the DUTCH BRAND line. Most of them handle it.

DUTCH BRAND PRODUCTS

Every DUTCH BRAND item has been prepared to meet an express demand on the part of this country's 4,250,000 motorists. Every man who drives a car needs and can be sold anywhere from one to five DUTCH BRAND Products **at one time.** Volume sales—volume profits—result. Handsome repeat orders follow—due to QUALITY.



Order of your jobber today—DUTCH BRAND Auto Patching Cement—2-in-1 Tread Filler, Rubber Seal, Vulcanizing Cement, Radiator Seal, Carbo-Cide, Valve Grinding Compound, Gasket Shellac, Varni-Brite, Tire Talc and Friction Tape. Or send for catalog of complete line.



VAN CLEEF BROS.

Manufacturers Dutch Brand Rubber Cements and Auto Chemical Specialties

7701-7711 Woodlawn Ave. " " " Chicago, Illinois

During the Chicago Show, Visit Our Exhibit at Hotel La Salle, Booth 6, Mezzanine Floor.
The DUTCH GIRL Will Be There To Meet You

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DAYTON
QUICK DETACHABLE WIRE WHEELS
MADE UNDER LICENSE



ARE YOU SECURING WINTER BUSINESS?

For Ford and Chevrolet Cars

More Sedans and Coupelets will be sold this winter than in any previous year. What does this mean to you, Mr. Dealer? It means that any accessory which adds to the length of service, safety or attractiveness of these cars is going to be in big demand. Dayton Wire Wheels appeal to the conservative owner because of the wonderful resiliency which gives 25% more tire mileage and lengthens the life of the car proportionately. The quick change feature of "Daytons" represents a definite saving of time to the busy man, as well as a matter of comfort when a tire change becomes necessary in zero weather.

Strength and Safety

"Daytons" are five times as strong as wooden wheels and will not collapse under the most violent impact caused by skidding on slippery streets. The beautiful design of "Daytons" gives the last touch of elegance to the Sedan or Coupelet. Every closed car owner is a live prospect for Dayton Wire Wheels. There are wonderful sales opportunities in "Dayton" winter sales.

Deliveries Now!

Dayton Wire Wheels will be on exhibition at the Annex Hotel, Chicago, during the Chicago Automobile Show.

The Dayton Wire Wheel Company
826 Miami Road, Dayton, Ohio

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9 reasons why the SPERY Radiator

surpasses all other types of radiator construction—whether for motor car, truck or tractor:

1 It combines every advantage of the tubular and the honeycomb without the disadvantages of either.

2 It renders 30% to 40% greater cooling efficiency than any other type.

3 It is extremely light in weight—yet

4 It is the most thoroly rigid radiator made.

5 Its durable construction makes it withstand the hardest service.

6 It will not leak or clog.

7 It offers the surest resistance against freezing.

8 It adds years of life to your car, truck or tractor.

9 It is the handsomest, simplest and distinctly BEST radiator core construction made.

To Manufacturers of Cars, Trucks and Tractors:

We will be glad to send a sample radiator for test at the hands of your engineers.

To Dealers: Our agency proposition is an extremely advantageous and attractive one. Write for the details.

To Car, Truck and Tractor Owners: Write for complete particulars.

Hooven Radiator Co., Room 703, 417 S. Dearborn St., Chicago, Ill.

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4 reasons should sell



A Scientifically Perfected Ring

BURD Piston Rings represent the greatest advancement in piston ring manufacture of the past decade. They are the work of mechanical experts. The result of years of experimentation.

The BURD Guarded Opening seals the power in the cylinders. It turns waste power into extra power. No other piston rings have this feature. It is exclusively BURD. And so no other ring assures the perfect and constant piston ring fit that BURD offers.



A Nation-Wide Advertising Campaign

Full page advertisements in the Saturday Evening Post are appearing regularly. They are educating motor car owners to the vital importance of perfect piston rings in motor performance. They are proving to them that BURD Rings excel — and why.

And so just as motor car owners are demanding certain axles, bearing and lighting systems, they will now demand BURD Piston Rings.

Burd High Compression Ring Company
Rockford, Illinois

BURD

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why you Burd rings

A Complete Dealer Service

The BURD Company is not content merely to manufacture a perfect ring and to tell its story in national publications.

The most complete dealer service ever offered by an accessory manufacturer ties up right to your store its quality product and the thousands of dollars spent in advertising.

Circulars, letters, placards, signs, newspaper advertising that point to you as a BURD Piston Ring dealer are furnished you free.



Easy Sales—Big Profits

A combination such as we offer guarantees a demand for BURD Rings. You don't have to SELL them. Motor car owners will ASK for them.

And with all this you get a margin of profit that we know you will consider most liberal.

You, as a live dealer, must realize the exceptional opportunity BURD HIGH COMPRESSION RINGS offer. So write your jobber or direct to us today.



Burd High Compression Ring Company
Rockford, Illinois

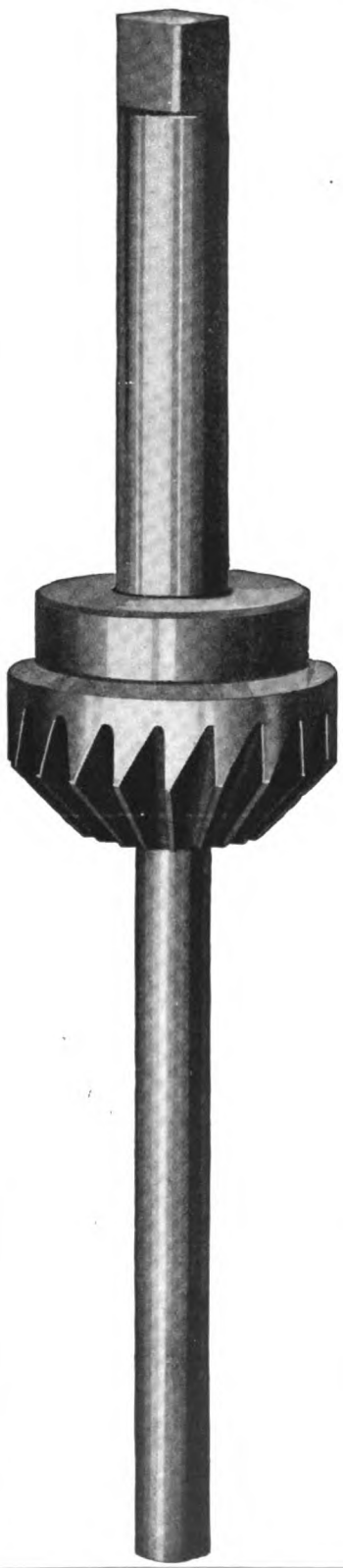
HIGH COMPRESSION PISTON RINGS

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The SIOUX Way

Do the Heavy Work with the

Sioux Valve Seat Reamer



Save hours of tiresome valve grinding by removing the deep carbon pits and other irregularities from the valve seats with this rapid cutting, absolutely accurate reamer.

Add the Finishing Touches With the Sioux Valve Grinder

Grinding, of course, is necessary to make a perfect fitting valve, but after the reamer has accurately seated the valve, only a few turns of the grinder are necessary.

That is the formula for doing a perfect job in 1/20 of the time required by the old method.

Sioux Refacing Tool

does the heavy work on the face of the valve. Works like a miniature lathe, and smooths the face of the valve in short order.

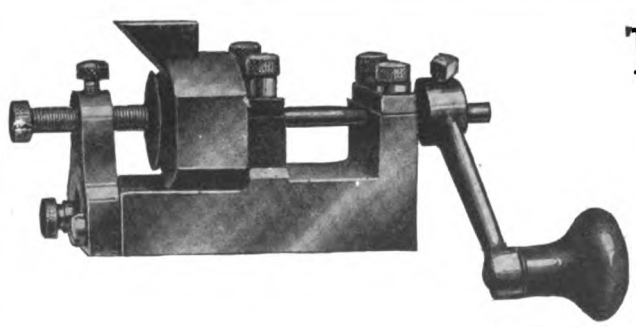
Sioux Service—besides making tools that are superior in working principles and in quality, we back our product with a very liberal service. We will keep all Sioux Tools ground and sharpened, the owner paying only the transportation charges.

Liberal Discount to Dealers.
All live jobbers sell Sioux Tools.

Manufactured by

Albertson & Company

Sioux City, Iowa



The Sioux Refacing Tool

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You can't avoid punctures and blowouts, but—with the

Rie-Nie Auto Patch

you can repair them so *fast* that two minutes after the tube comes out of the casing, it is ready for instant use again—and so *well* that there will never be another leak in *that* part of the tube.

No heat or tools to fuss with.

Just clean the tube with emery paper—apply cement—cut a piece of patch large enough to cover the hole—and press it in place with your hands. It takes hold instantly—and the hotter it gets from fast travel, the better it sticks.

Ask your dealer for the Rie-Nie Auto Patch. If he doesn't carry it, write us.

Large size (108 sq. in.) $1.00. Small size (36 sq. in.) 50c.

There are many other Rie-Nie Products such as those in the illustration, Rie-Nie Leather Dressing, Rie-Nie Refinishing Outfit, etc., with which it will pay you to get acquainted.

Write for our complete catalog, or see Automobile Trade Directory

Dealers: —There's quick turnover and a good profit in the Rie-Nie Products. Your jobber knows all about it. If not, drop a postcard.

DURKEE-ATWOOD CO.
MINNEAPOLIS, MINN. U.S.A.





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The National Auto Show

Under Auspices of National Automobile Chamber of Commerce, Inc.

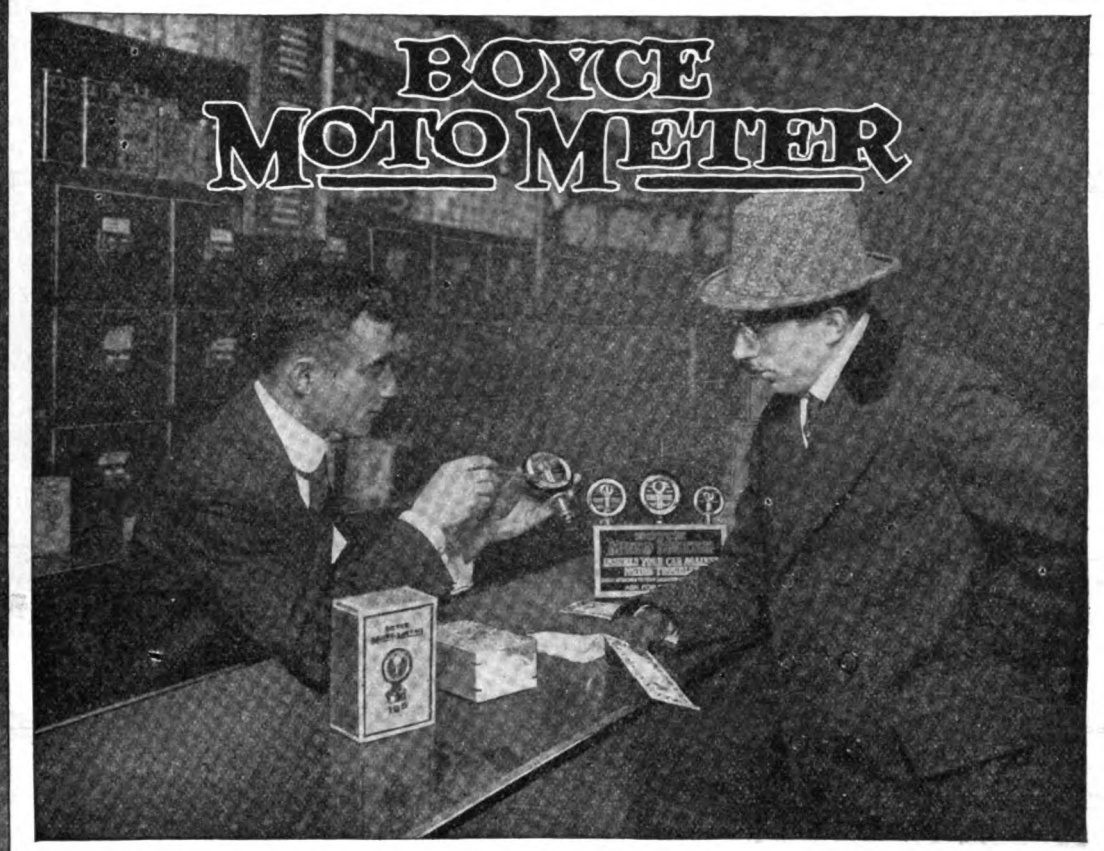
Jan. 26—Feb. 2
at CHICAGO

Four Hundred Exhibits of Cars and Accessories

S. A. MILES, Manager **7 East 42nd Street, New York City**

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BOYCE MOTO METER





SAY TO ANY CAR OWNER:

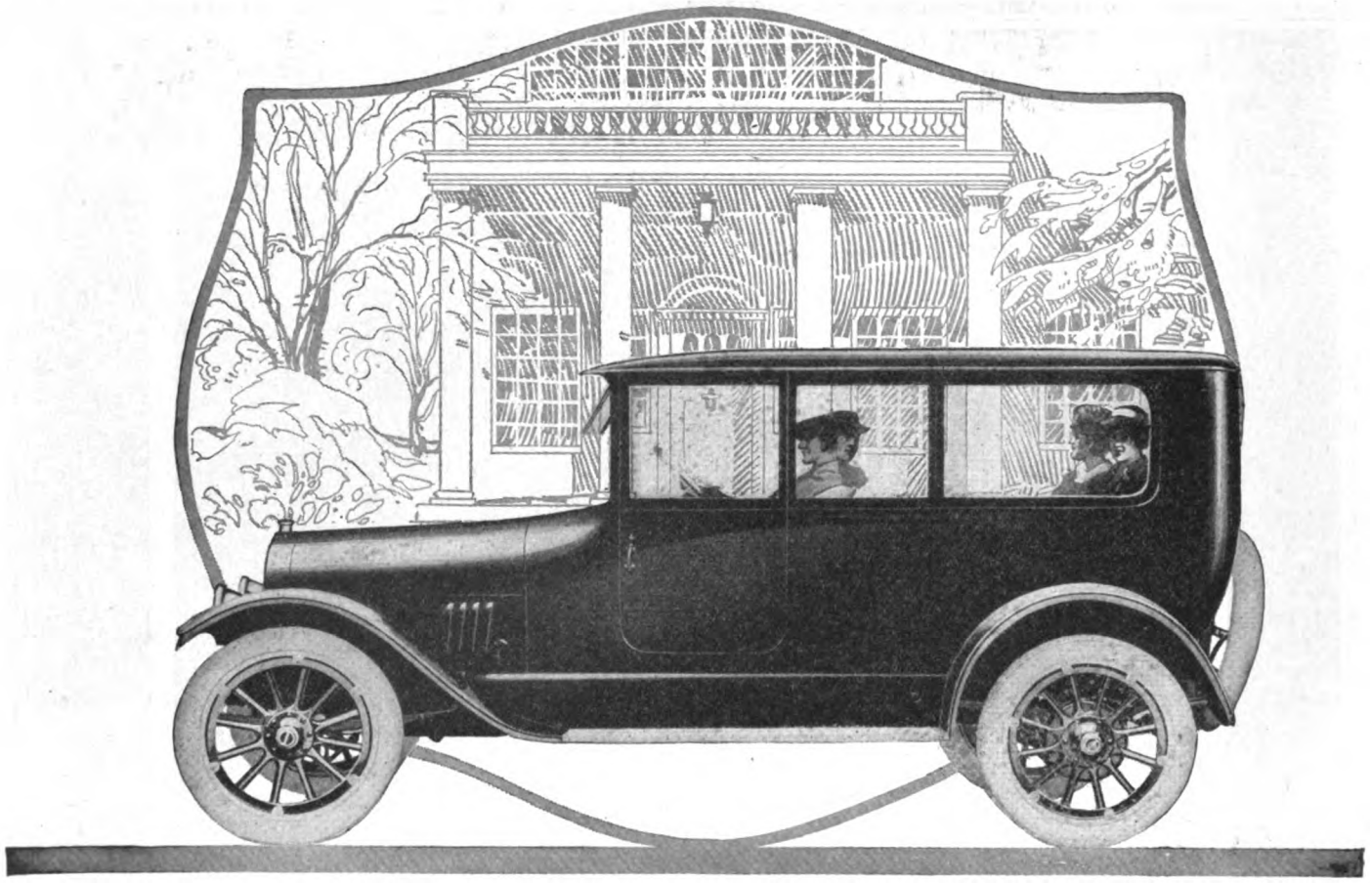
"Let me put a Boyce Moto-Meter on your car's radiator cap. Use it for thirty days. Let it prove its value. If you want the instrument after this trial I will send you a bill for $2.50, $5.00 or $10.00, according to the model you select. If you don't want it after this trial, I will take it back. It costs you nothing to prove its value on your own car."

Over one million Boyce Moto-Meters have been sold with this guarantee. Why don't you try to sell one of your customers a Boyce Moto-Meter? You can easily do this and they will consider you the best judge of automobile devices in your locality.

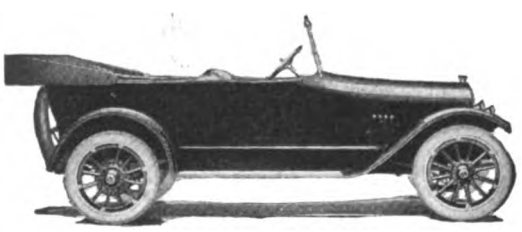
Prove its utility to your own satisfaction. Use a Boyce Moto-Meter on you *own* car for thirty days. Your enthusiasm then will sell hundreds of Boyce Moto-Meters.

THE MOTO-METER CO., Inc., Long Island City, N.Y.

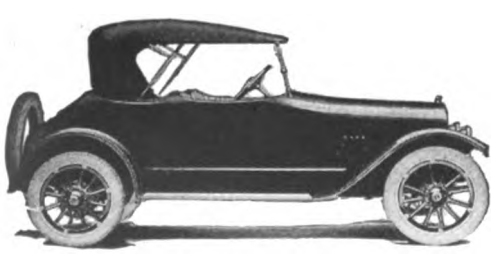
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Paterson SIX-New Convertible Sedan Offers the Perfect All-Season Car



Paterson 6-45
The Ideal Family Car



"Chummy Roadster"
Carries 4 Passengers with Comfort

It is complete.

For the discriminating buyer, who pays a moderate price, there is every conceivable convenience, every valuable comfort.

For the dealer, who caters to careful, patriotic buyers, the Paterson Six has to offer its full quota of equipment—backed by economy.

All the Paterson models are in the same plane with the new Convertible Sedan.

They are all complete.

5-Passenger Touring Car,	$1,265
7-Passenger Touring Car,	$1,295
4-Passenger Roadster,	$1,295
Convertible Sedan,	$1,795

W. A. PATERSON COMPANY
FLINT, MICHIGAN

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Hauling Profit

is assured the operator who adds King Semi-Trailers to his hauling equipment.

The King Semi-Trailer converts any motor truck into a six wheel hauling unit that will handle any load three times as great as the motor truck's hauling capacity. 30% of the burden is carried by the motor truck, 70% by the King Semi-Trailer. The famous King Irwin Universal Motion Shock Absorbing Fifth Wheel makes the connection between any standard motor truck and King Semi-Trailer.

Big operators, whose hauling operations are on a big scale, cut hauling costs by using King Semi-Trailers with their present motor truck equipment. Five motor trucks and five King Semi-Trailers have the hauling capacity of a fleet of fifteen motor trucks. The operating cost is the cost of operating five trucks.

Built with 1000 to 10,000 lb. capacities.

Prompt delivery assured.

King TRAILER ANN ARBOR MICH.

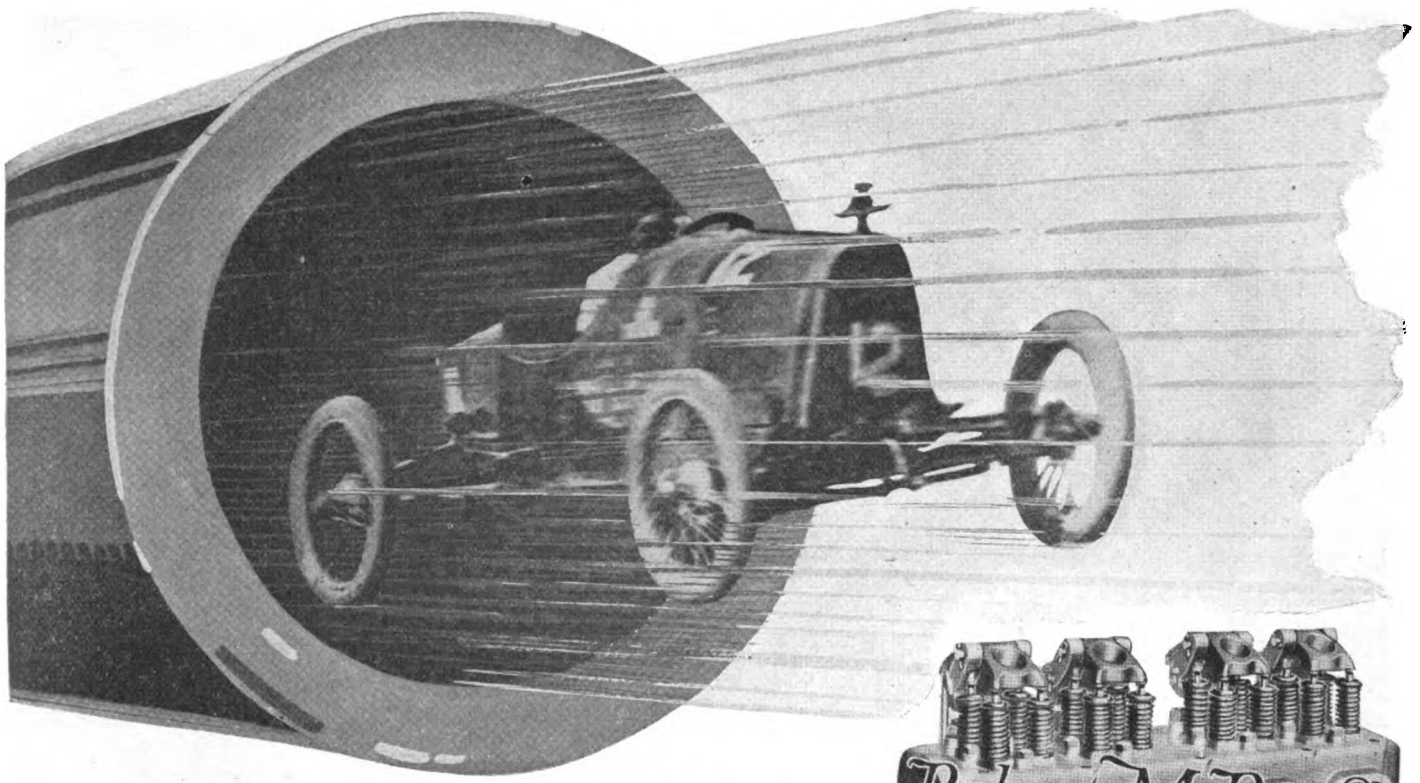
Distributors!

Manufacturers everywhere are conserving power—1918 will be a record year for trailers. Be sure you are representing the right one. Valuable territory still open. Write or wire for dealer contract.

King Trailer Company

750 Main Street, Ann Arbor, Michigan

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Photograph above shows Ben Lawell, of Columbus, Ohio, winner of 50-mile race at Cleveland, Ohio, going at the rate of a mile in 53 seconds on a one-mile dirt track, his Ford motor carrying Roof 16 Overhead Valve Equipment.

Price $85

16 Overhead Valves for Fords

Fords Go Like a Shot Out of a Gun

Equipped with

ROOF'S PEUGEOT TYPE CYLINDER HEADS

Also for More Power in Passenger Cars and Trucks

Speed—with special gears, all the way up to 87 miles per hour—with regular gears, normal to 57 M.P.H., is as easy to get in a ROOF-equipped Ford as it is in any high-priced, high-power car on the road or race course.

Or in place of speed, there is **extra power**—reserve force for trucks and passenger cars—that takes you up hills and through mud or sand without a wheeze or falter, and **at a distinct saving in fuel.**

Actual test shows a reduction of one-fourth to one-third in gasoline consumption on touring cars and trucks and the most surprising increase in power.

ROOF-equipped Fords won race after race last summer. They brought to life hundreds of old Ford passenger and commercial cars, **and put new dealers on the map.**

The demand for ROOF 16 Overhead Valves for Fords increases every day—and so does the supply. They put new pep into Ford motors.

Complete equipment for installation goes with every head. Installation is easy and any good mechanic can make the change in a few hours. $85 gets the complete equipment, furnishing Ford owners with 16-Valve service for which buyers are glad to pay thousands of dollars in other cars.

DEALERS—Know this all-winter, all-year seller. The demand for use on passenger Fords and trucks, is enough to put over big and growing profits **now, and every day.** The racing demand alone swamps dealers in season.

Write or Wire for Territory and Complete Details

ROOF AUTO SPECIALTY COMPANY

Anderson, Indiana, *The "Puncture-Proof City"*

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You Need These—Because They Mean More Business and Greater Profits

The Woodworth Easyon Chains and the Woodworth Easyon Solid Tire Grips make an instant appeal to the good sense of the motorist, and virtually sell themselves.



Easyon Solid Tire Grip

Takes a powerful hold on the road; does not injure the tire or the roadway; it is practically unbreakable and causes no bumping on pavements. When run on hard road surfaces the tire is running over a very thin half oval surface, but when the tire slips the grip assumes a slanting position on the tire and takes a deep hold in mud or snow.

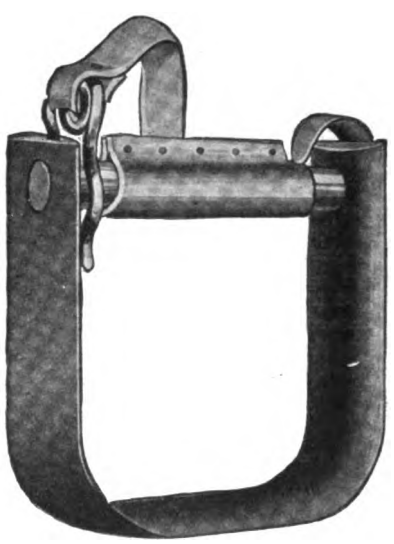
Made for all sizes of single or dual tires

Write us for our liberal proposition

Woodworth Easyon Chains

Grip Like Mud Hooks
Ride Like Bare Tires

Are designed to be conveniently carried by the motorist and then to be quickly and easily put in place when he finds his back wheels spinning in the mud or snow or in any slippery place.
They take up scarcely any room.
They are applied in a few moments.
They provide perfect traction.
They are so designed that they cannot scratch the wheels or harm the tires.
They are made in three sizes—to fit any car.
They are packed 8 in a bag—4 for each wheel. Made also for solid tires—single and dual. They are low in price.



For Trucks

Woodworth Manufacturing Corp.

Chicago Distributors
Geo. B. Carpenter & Company
436 Wells Street

Niagara Falls, New York

New York City Distributors
Rose Auto Supply Co.
1765 Broadway

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U S
MOTOR FLOATING POWER PLANT TRUCKS

Foresight Sell Motor Trucks

Pick the right Truck and "Win"

The U. S. is the truck account of the hour.
Keep your business booming. Sell trucks and MORE TRUCKS as the enormous demand for war-time transportation increases.
You know the *BIG STIR* U. S. TRUCKS have made in the truck world.
The U. S. is a HIGH GRADE, HIGH QUALITY truck.
For nine years it has made GOOD.
Half of all the U. S. Owners have placed repeat orders.
Built in the largest exclusive heavy duty truck factory in the country.
Backed by financial strength, harmonious organization and a strong co-operative policy.
The organization behind the U. S. is modern in spirit—it knows how to CO-OPERATE.
TODAY is the psychological time to THINK—THINK QUICK AND ACT. Don't let the other fellow beat you to it.
Get aboard immediately—AND WIN.
Are you the future U. S. Dealer in your town?
Wire us your name today.

THE UNITED STATES MOTOR TRUCK COMPANY
CINCINNATI, OHIO

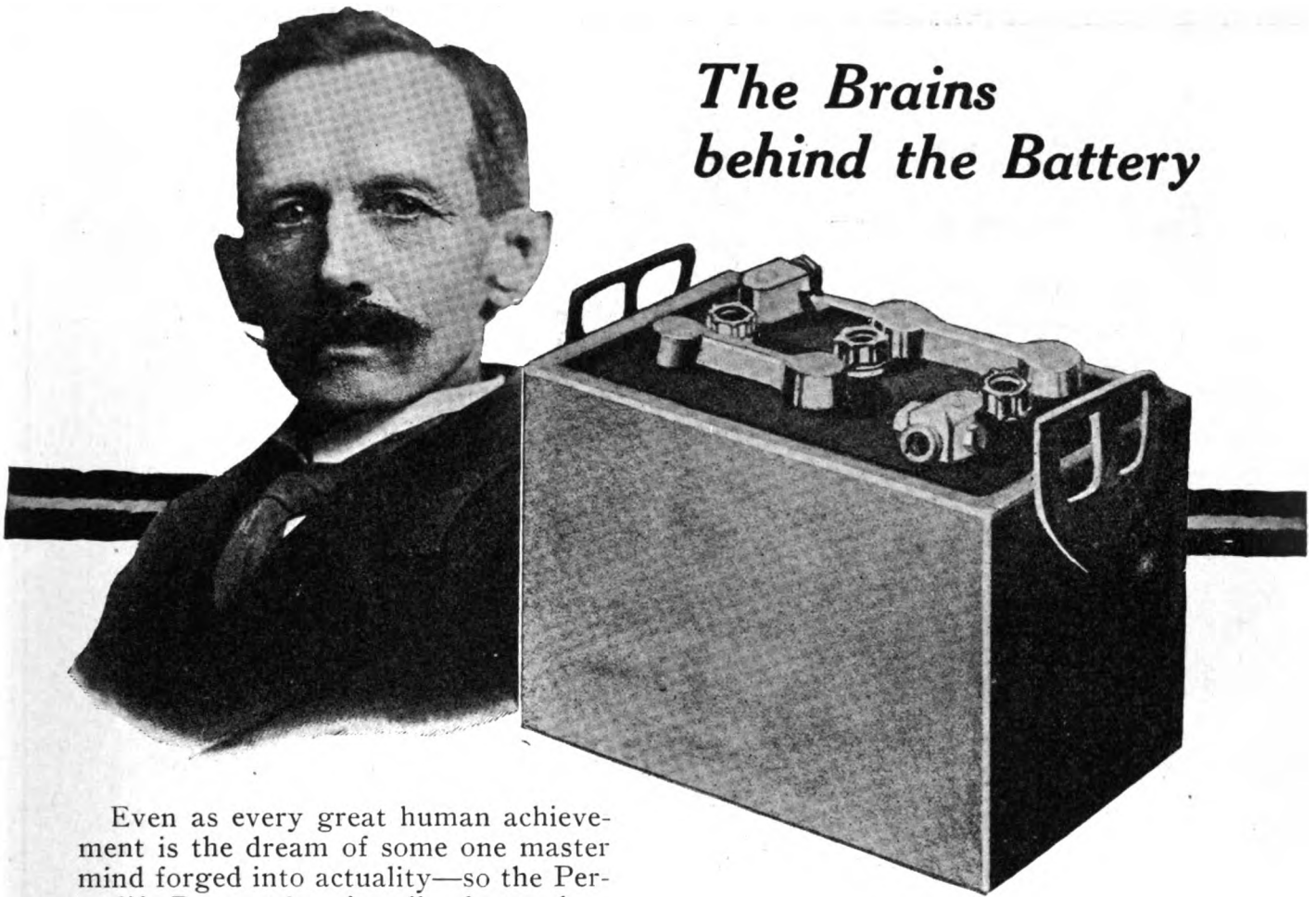
New York [Philadelphia Baltimore Pittsburg Cleveland] [Denver Detroit Chicago Atlanta St. Louis] Boston Minneapolis

DEALERS IN ALL COMMERCIAL CENTERS



U.S. MOTOR TRUCKS

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The Brains behind the Battery

Even as every great human achievement is the dream of some one master mind forged into actuality—so the Permalife Battery is primarily the product of the brains of one man.

Frederick Wright, electrical genius, whose name is writ high on the honor roll of inventors, is the master mind back of Permalife.

This man possessed the will and the grit and the faith that led him struggling through years of bitter disappointments and failures, to at last bring forth to the world the one truly great storage battery.

In Permalife Wright built—

A battery which delivers a higher discharge for a greater length of time than any other ever produced.

A battery which is absolutely free from harmful sulphation.

A battery whose plates are so designed as to be positively protected against buckling, and which are interspaced with electrically treated separators to prevent short circuiting.

A battery whose plates are *packed* (not pasted) with an active material so permanent as to give them supreme durability and yet so porous as to facilitate the quick chemical action of the electrolyte.

In short—a battery which is so perfect in design and construction as to stand alone in its capacity for service and long life.

Nothing succeeds like success. Frederick Wright was sought by great interests and told to name his own terms, but he preferred his independence. The end justifies his judgment.

Today, in the model Permalife factory at Poughkeepsie, Wright's dream has reached fruition. Here under ideal conditions with a corps of trained assistants and expert workmen operating under his personal supervision, Permalife Batteries are being produced to satisfy his most exacting specifications, and in ever-increasing quantities to meet a tremendous, healthy demand.

The merchandising plan of the Permalife Co. is unique. It places before the dealer a plan by which the bulk of the local battery business can be gained and held and made to yield rich returns.

Write for this co-operative proposition today.

PERMALIFE - STORAGE BATTERY COMPANY, Inc., Poughkeepsie, N. Y.

Permalife

THE EVERLASTING BATTERY

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MASTER

The proper plug for—

Passenger Cars
Motor Trucks
Tractors
Marine Engines
Stationary Engines
Airplanes
Fire Apparatus



One of the Big Essentials—

toward speeding up the transportation of the country is—Uninterrupted operation of all motor vehicles.

Every individual

MASTER

Calorite Spark Plug

must pass with a perfect score a series of gruelling tests covering every possible mechanical or electrical weakness.

No spark plug showing weakness in any of these tests is allowed to enter our stock room.

Consider the value to you of this positive assurance of exceptional stamina, rugged endurance, and freedom from troubles characteristic of plugs made solely to suit a price.

There are many good reasons why Master Calorite Spark Plugs should be your selection.

Their design is in accord with the best engineering practice.

They are sturdily constructed of the finest materials obtainable, regardless of cost.

They are tested under rigid inspection rules.

They are generously guaranteed.

In their resale you derive a margin of profit which justifies your whole-hearted recommendation to your customers.

And the retail price is amply justified by their efficiency and durability.

$1.00 and $1.25.

Depending upon the size.

Hartford Machine Screw Company, 530 Capitol Ave., Hartford, Conn.

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The Fighting Mast is Built for Strength

like the PHILADELPHIA DIAMOND GRID BATTERY

See how all the strands in this fighting top are woven together into a perfect net work of strength in the form of Diamonds everywhere. The Diamond fighting mast of a battleship can be shot almost to pieces, but it will continue to stand because its Diamond construction braces it in every direction.

The plates of the Philadelphia Diamond Grid Battery, like the fighting mast, are built on the Diamond construction principle. The members of their frame-work (or grid) cross one another at angles, forming Diamonds, which brace the plate to withstand the most severe strain.

That is why Philadelphia Diamond Grid Battery Plates do not buckle, short circuit, or shed their active material. That is why they guarantee freedom from plate trouble.

Philadelphia Diamond Grid Batteries have many other distinctive and important features, such as doweled, lock-corner, wood cases, uni-seal assembly, bolted handles, non-spill moulded covers, easily removable filler caps, and patented quarter-sawed, hard wood separators, which give perfect insulation and conductivity. These separators actually last as long as the Diamond Grid plates themselves.

A thousand Service Stations and Dealers are ready to install a Philadelphia Diamond Grid Battery in your car. Every starting, lighting and ignition battery is

Guaranteed for 18 Months

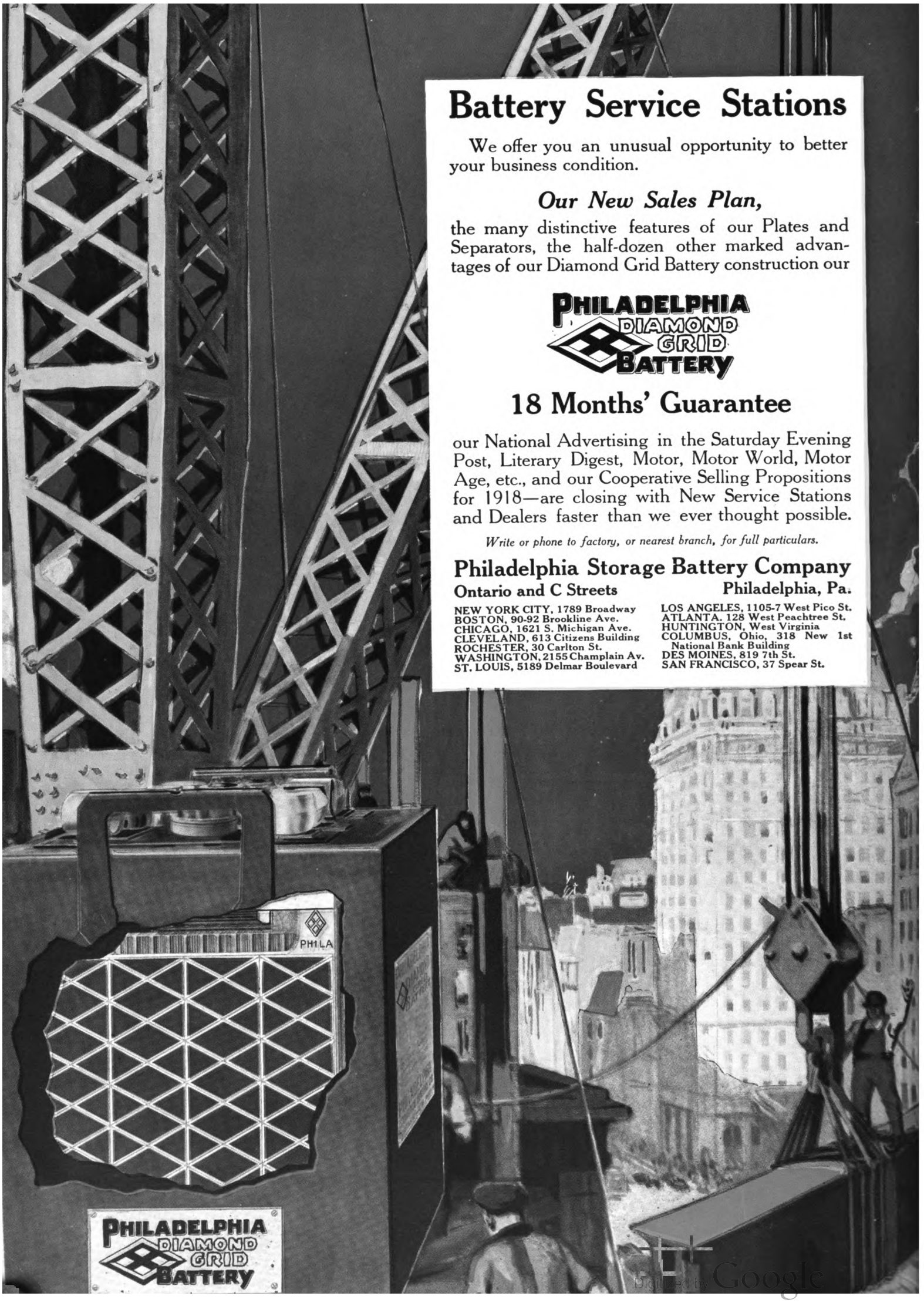
In the national effort to increase coal production, Philadelphia Diamond Grid Batteries, in mine locomotives, are hauling coal in greater quantity at lower cost than was ever believed possible.

In electric and industrial trucks, in the Army and Navy, in farm lighting, in motor boats, and in every other storage battery field, where a strong, reliable battery is needed, the Philadelphia Diamond Grid Battery is "doing its bit."

90% of all Electric passenger automobiles have the Philadelphia Diamond Grid Battery as standard equipment; a striking proof of the universal recognition of the indispensable part played by the Diamond Grid in the development of the modern high-powered economical electric car.

Philadelphia Storage Battery Company
Ontario and C Streets Philadelphia, Pa.

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Battery Service Stations

We offer you an unusual opportunity to better your business condition.

Our New Sales Plan,

the many distinctive features of our Plates and Separators, the half-dozen other marked advantages of our Diamond Grid Battery construction our

PHILADELPHIA DIAMOND GRID BATTERY

18 Months' Guarantee

our National Advertising in the Saturday Evening Post, Literary Digest, Motor, Motor World, Motor Age, etc., and our Cooperative Selling Propositions for 1918—are closing with New Service Stations and Dealers faster than we ever thought possible.

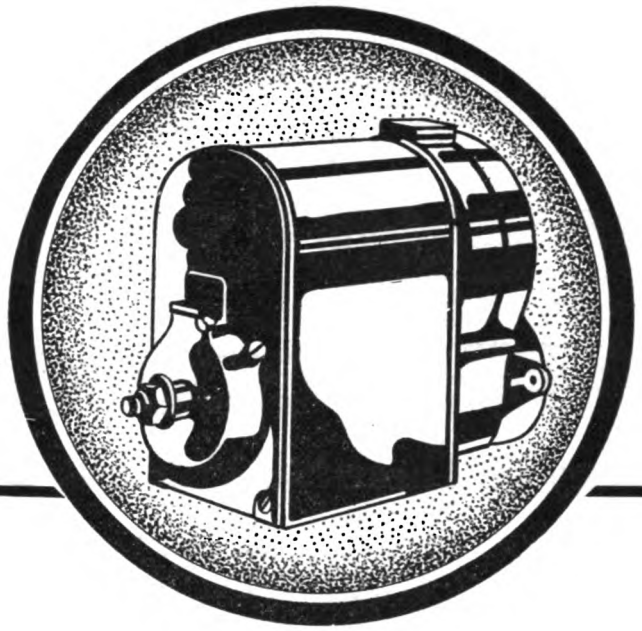
Write or phone to factory, or nearest branch, for full particulars.

Philadelphia Storage Battery Company

Ontario and C Streets **Philadelphia, Pa.**

NEW YORK CITY, 1789 Broadway
BOSTON, 90-92 Brookline Ave.
CHICAGO, 1621 S. Michigan Ave.
CLEVELAND, 613 Citizens Building
ROCHESTER, 30 Carlton St.
WASHINGTON, 2155 Champlain Av.
ST. LOUIS, 5189 Delmar Boulevard
LOS ANGELES, 1105-7 West Pico St.
ATLANTA. 128 West Peachtree St.
HUNTINGTON, West Virginia
COLUMBUS, Ohio, 318 New 1st National Bank Building
DES MOINES, 819 7th St.
SAN FRANCISCO, 37 Spear St.

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"Magnetos are a Mystery to Me!"

"Electricity isn't in my line. With *all* the makers so strong in their claims how am I to judge which Magneto will give me the best service?"

That is the attitude of many car owners toward the magneto question.

Claims are poor things to judge by; *results* are what count, especially results in competitive tests. And since you cannot easily make the tests for yourself, follow the decision of those car, truck and tractor builders who are most particular to use the best.

Truck service, with its heavy, constant strains and shocks, is where the differences between magnetos show most plainly. In the list of 81 truck builders who use Eisemann as standard equipment appear the names which mean most.

THE EISEMANN MAGNETO CO.

Sales and General Offices: 32-33d St., Brooklyn, N. Y.

Chicago, Ill., 910 South Michigan Ave.
Detroit, Mich., 802 Woodward Ave.

EISEMANN MAGNETO

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TWITCHELL AIR GAUGE

Tires and Gasoline are War Necessities

Economy of These is a Patriotic Duty

THE LESS YOU USE THE MORE THERE WILL BE FOR SUPPLY TRAINS AND ARMY AMBULANCES.



When you run your car on insufficiently inflated tires you are wasting tires and gasoline.

You can help the boys in the trenches and be in a nice little sum of money besides if you'll make it a point never to run on under-inflated tires.

The way to know when your tires are inflated up to the correct pressure is to measure the air in them with a

TWITCHELL AIR GAUGE

at your dealer's or

The Twitchell Gauge Co., 1516 So. Wabash Ave., Chicago

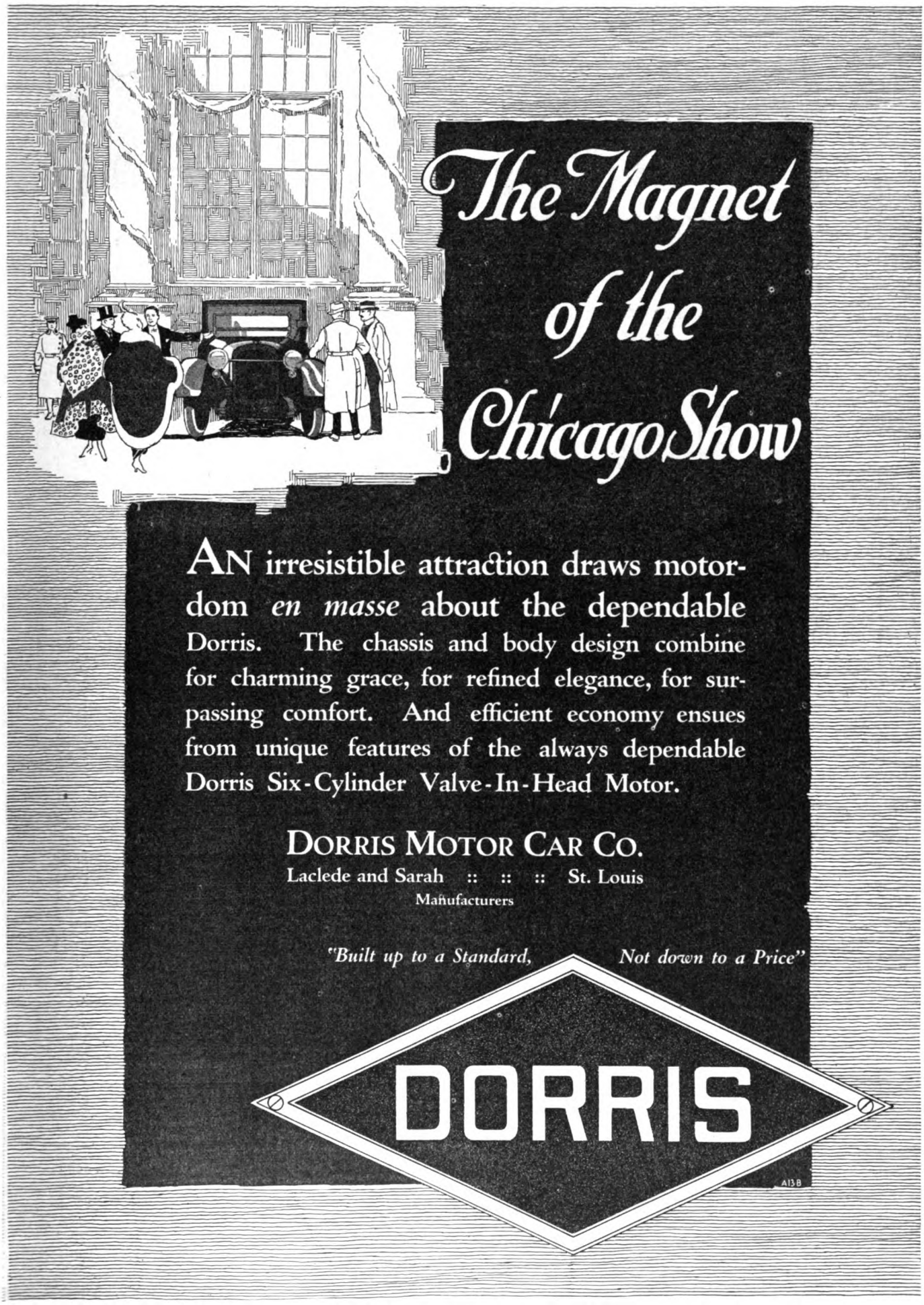
PRICE $1.25

TO DEALERS

The Twitchell Gauge is now packed in dozen lots for mounting on an attractive counter display easel. Dealers having used this rack for the presentation of Twitchell Gauges report their sales very materially increased thereby.
The Twitchell is as easy to sell as it is to use. We advertise it in a dozen magazines, including the Saturday Evening Post, Collier's, The Literary Digest, Life and Leslie's, and it enjoys in addition even more valuable word-of-mouth advertising which thousands of enthusiastic purchasers have been giving it for the past seven years.



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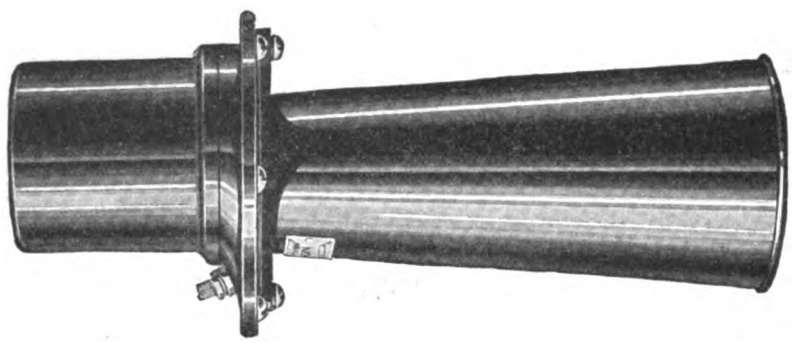


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SPARTON PRODUCTS

First Choice of America's Best Cars

That America's leading motor car manufacturers have come to regard Sparton products as standards of quality is evidenced by the fact that most front rank cars are now Sparton-equipped.



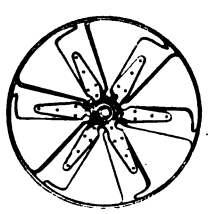
Forty-four leading motor car manufacturers equip their cars with Sparton Motorhorns. Included in this list are:

Packard	Winton	Rauch & Lang	Peerless
Hudson	Chalmers	Marmon	Jordan
Studebaker	Haynes	Stutz	Kissel
White	Marion-Handley	Cole	Briscoe
	Jackson		

And Twenty-five Others



Made and tested in conjunction with Sparton Radiator Fans, Sparton Radiators are the most efficient procurable. Made of non rusting metal, with secure jointures, they do not leak.



The Sparton Patented Type Radiator Fan moves the greatest volume of air at the highest speed with least consumption of power. Sixty of America's best cars are equipped with this fan.



The Sparton Gasoline Vacuum System insures a constant supply of fuel at the carburetor regardless of grade or speed. On test this device has raised gasoline 22½ feet above gravity level.

We invite motor car manufacturers to write us for information. Prompt deliveries assured.

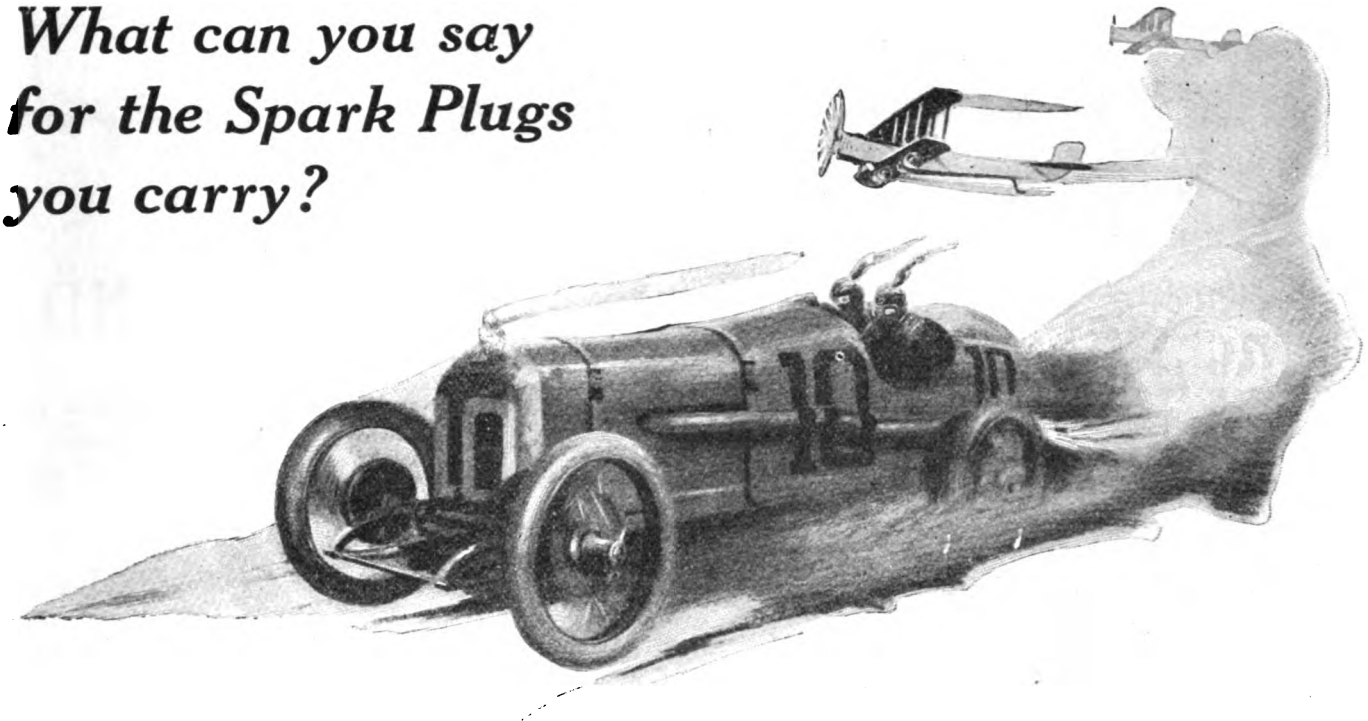
The Sparks-Withington Co.

Jackson, Mich., U. S. A.

[109

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What can you say for the Spark Plugs you carry?



"That they seem to give satisfaction? That you have heard no complaints? That certain car manufacturers equip with them exclusively?"

Such statements prove nothing. Any plug will spark an engine. What the car owner wants is power, responsiveness, quick pick-up, low fuel consumption—the kind of service that is unfailingly delivered by Rajah Plugs.

Are these mere claims? Ask the drivers of racing cars. Look over the equipment of the winning cars for the past 16 years.

Rajah Plugs have stood the gruelling tests of racing motors, airplanes and speed boats for years.

Their record is your sales argument and your guarantee of satisfaction to all who equip with Rajah Plugs.

Stock Rajahs and Rajah Terminals and build up a real plug business.

RAJAH *SPARK PLUGS*

RAJAH TERMINALS AND ADAPTERS

are furnished so that Rajah Plugs can be used on any car not equipped with the Rajah type of Clip Terminal. Any size exchanged if desired



Rajah Regular Clip Terminal
Adjustable to any cable. With the extra collar supplied fits any make of plug.



Rajah Thumb Nut Terminal
Adapter for Dodge, Ford, Hup, Hudson, Maxwell, Mitchell, Packard Twin Six, Pullman.



Rajah Ferrule Clip Terminal
With any size ferrule required. Fits any make of plug with the extra collar supplied.



Rajah Packard Terminal
Adapter for Packard 4 and 6 cylinder.



Rajah Stud Terminal
Adapter for Buick, Chevrolet, Oldsmobile.



Rajah Ball Terminal
Adapter for Franklin.
Special type for Willys-Knight.



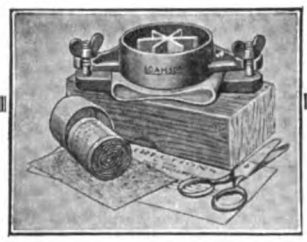
Rajah Priming Plug

MANUFACTURED BY THE RAJAH AUTO SUPPLY COMPANY, BLOOMFIELD, N. J.

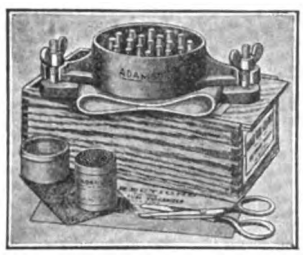
Sales Department, EDWARD A. CASSIDY COMPANY, INC., Madison Avenue at 40th Street, New York City

When writing advertisers please mention Motor World—It identifies you

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MODEL "M"
FOR
3½ INCH TUBES AND UNDER



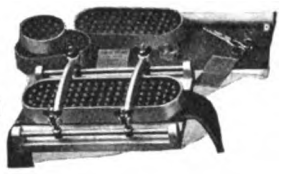
MODEL "T"
FOR
ALL SIZES INNER TUBES



MODEL "E"
FOR
FIVE MINUTE VULCANIZING



MODEL "U"
FOR
ALL CASINGS AND INNER TUBES



MODEL "S"
FOR
PRIVATE GARAGES AND REPAIR SHOPS

DON'T TIE YOUR HANDS!

Are you one of the dealers who are undecided as to the make of vulcanizer you will sell next year? Or perhaps you haven't given much thought to it, thinking they're all alike.

If either is the case—remember the dealer who sells

ADAMSON VULCANIZERS

has a big advantage over his competitors because the Adamson is the only COMPLETE line. His hands aren't tied by a lack of types and sizes. He can supply an Adamson for any requirement asked for. He sells the pioneer vulcanizer—the one that taught motorists how they could save on their tube bills—and later, on their tire as well as their tube bills with the same outfit.

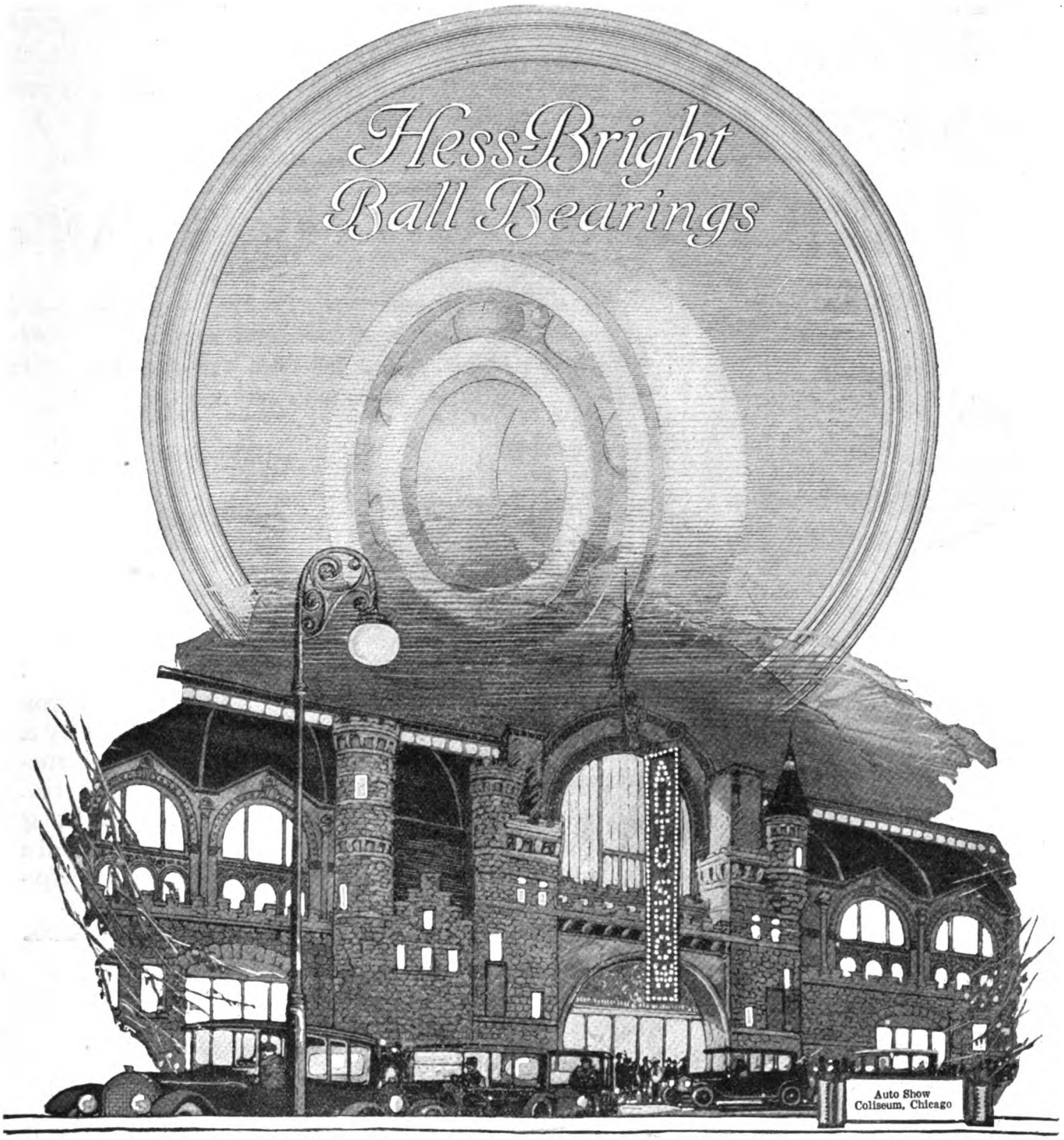
Adamson Vulcanizers use convenient and economical gasoline. They do not require expensive electricity, are not delayed by having to generate steam, or need no special fuel. They are absolutely safe; the heat is automatically regulated. Motorists prefer them for these reasons.

The fact that 1,000,000 Adamson Vulcanizers are giving satisfactory service, is proof of their popularity and reliability. Get your share of the profits. Don't lose sales because you can't supply every demand. Or because you didn't order early. Order from your jobber today. If you don't know who the nearest one is, write us.

ADAMSON MANUFACTURING CO.

EAST PALESTINE, OHIO

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At the show you'll see many cars with—

beautiful lines, sumptuous upholstery and glittering finish. But these above do not establish quality in motor cars. The real test is when, after thousands of miles of running, that car still operates smoothly and silently, still free from vibration. Such are the cars that have Hess-Bright Ball Bearings. The choice of cars famous for exceptional service—the bearings of precision and long life—Hess-Brights are a mechanical feature you should certainly look for in your coming car.

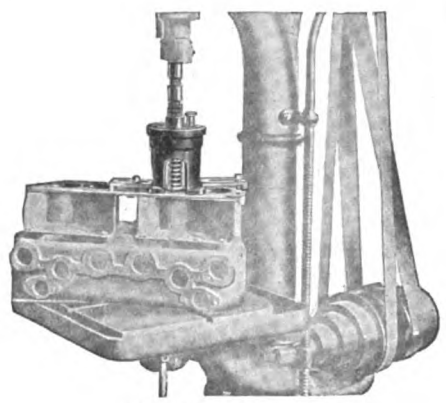
THE HESS-BRIGHT MANUFACTURING COMPANY

Where Performance takes Preference over Price

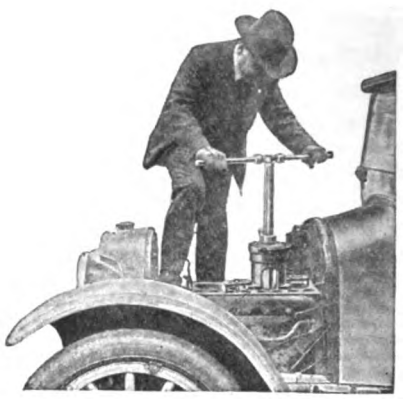
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ANNOUNCING THE

"IMPROVED UNIVERSAL" CYLINDER REBORING TOOL

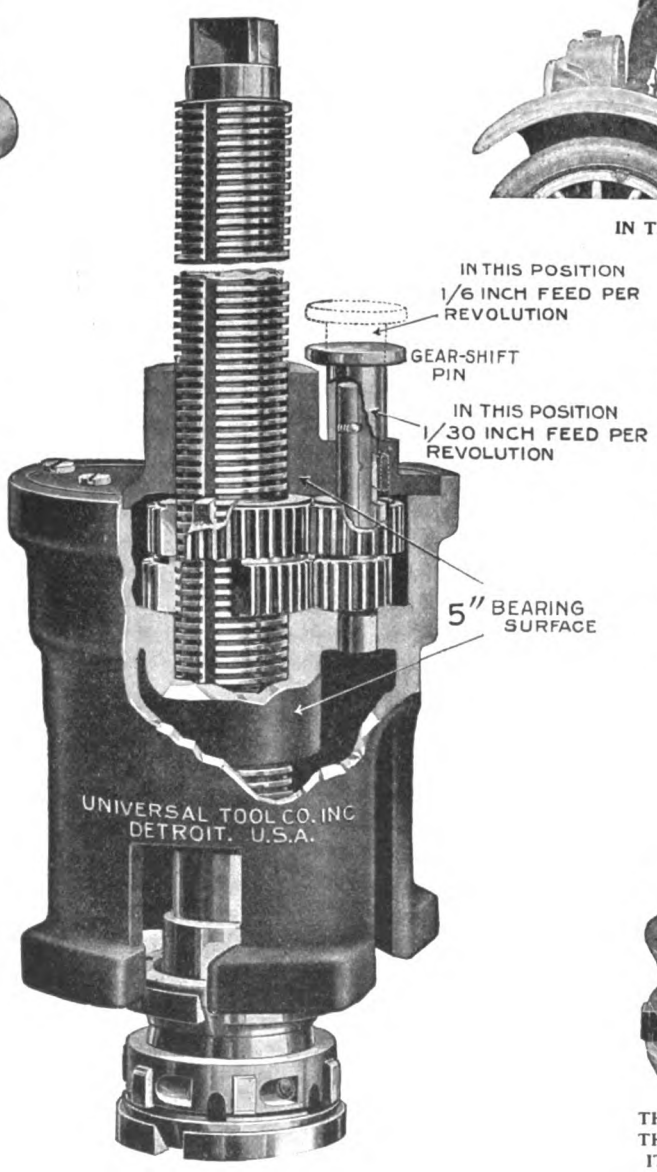


ON THE DRILL PRESS

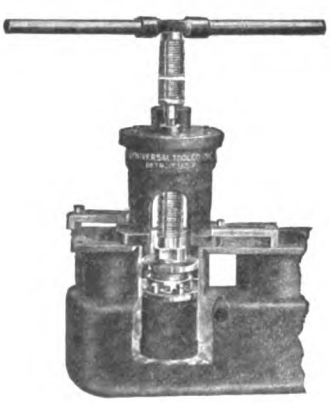


IN THE CAR

A Tool that will rebore any type of cylinder, open or closed head, is not affected by connecting rod clearance or wrist pin scores



Is recommended for service by a large number of the leading automobile manufacturers



ON CLOSED END CYLINDER



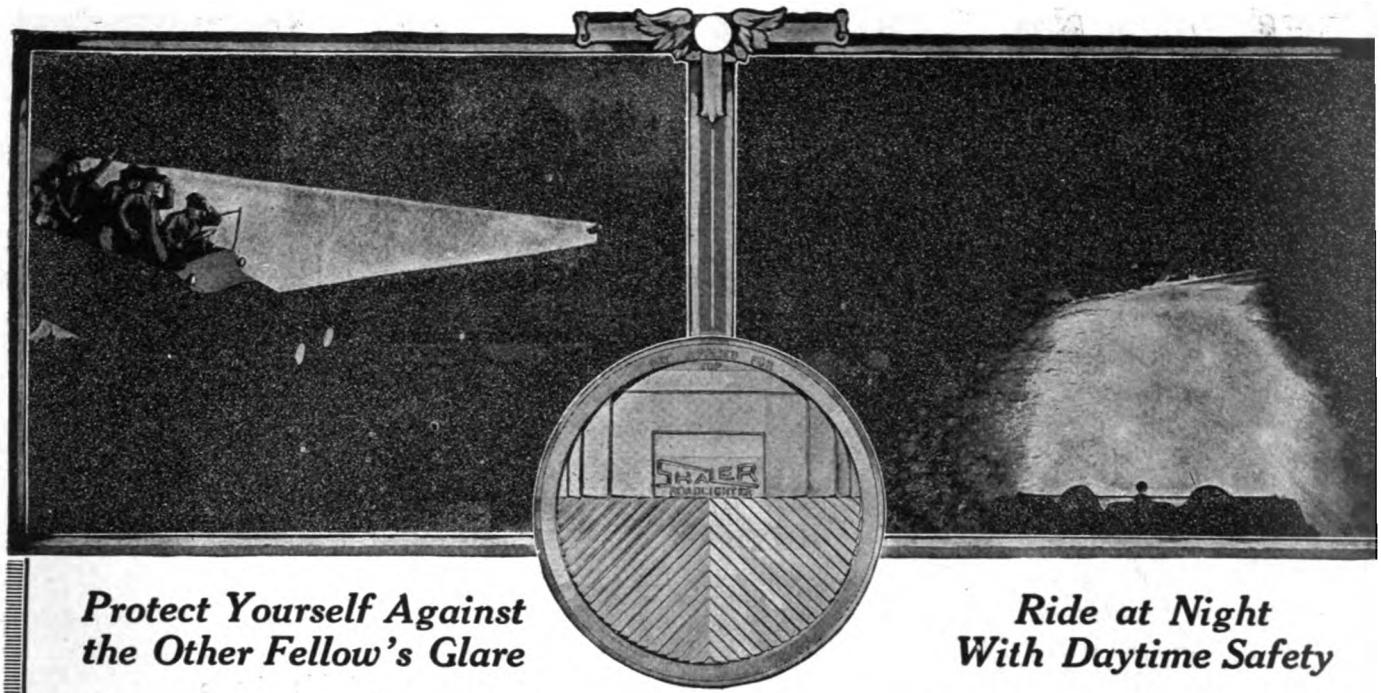
THE SIMPLICITY OF THE UNIVERSAL IS ITS ADJUSTMENT

The "UNIVERSAL" CYLINDER REBORING TOOL

THE UNIVERSAL TOOL COMPANY, Inc.

WRITE FOR CIRCULAR 6 **DETROIT, U. S. A.** ***BUY FROM YOUR JOBBER***

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Protect Yourself Against the Other Fellow's Glare

The danger of night driving is banished because the other fellow's glare can't blind you and your light doesn't bother him, because you have light from fence to fence if your car is equipped with SHALER Roadlighters; and because you have ample distance light to allow you to drive at daylight speed with confidence that obstacles, turns, etc., will be revealed in time for you to avoid them.

Ride at Night With Daytime Safety

In addition to distance light, superior to that from a headlight with a clear glass front, the SHALER Roadlighter throws concentrated beams on the edges of the road, such as could only be obtained by using a spotlight on each side of the car. This beam, composed of light rays that are usually wasted in the treetops, is so strong that it counteracts the glare from approaching headlights and enables one to keep a clear view of the edges of the road while meeting and passing.

SHALER ROADLIGHTER

Pierces the Glare of Approaching Headlights
Illuminates the Ditches
Accurate Focusing Unnecessary
Easy to Keep Clean

Shoots the Light Far Ahead
Legal Everywhere
Rays Penetrate Fog and Dust
Easy to Install

Every day the newspapers are full of reports of accidents caused by *unsafe headlights.*

Your safety and perhaps the very lives of yourself, your family, and other motorists depend absolutely upon the efficiency of your headlights.

To make driving at night *safe*, you need more than an ordinary headlight that lights only part of the road.

Why deliberately risk your life with poor headlights or dimmers that shut off your light just when you need it most?

Limited Offer to Dealers Only

We want every automobile accessory dealer in the United States to try out a pair of SHALER Roadlighters on his own car—*at our expense.*

Mail the coupon for full particulars regarding this big offer. There is no obligation—don't put it off—clip and mail coupon *now.*

C. A. Shaler Company
9406 Fourth Street **Waupun, Wis.**

Dealers' Offer Coupon

C. A. SHALER CO., 9406 Fourth St., Waupun, Wis.

Gentlemen: Send me full particulars about your offer to l dealers try out a pair of SHALER Roadlighters at your expens This obligates me in no way.

Name .....

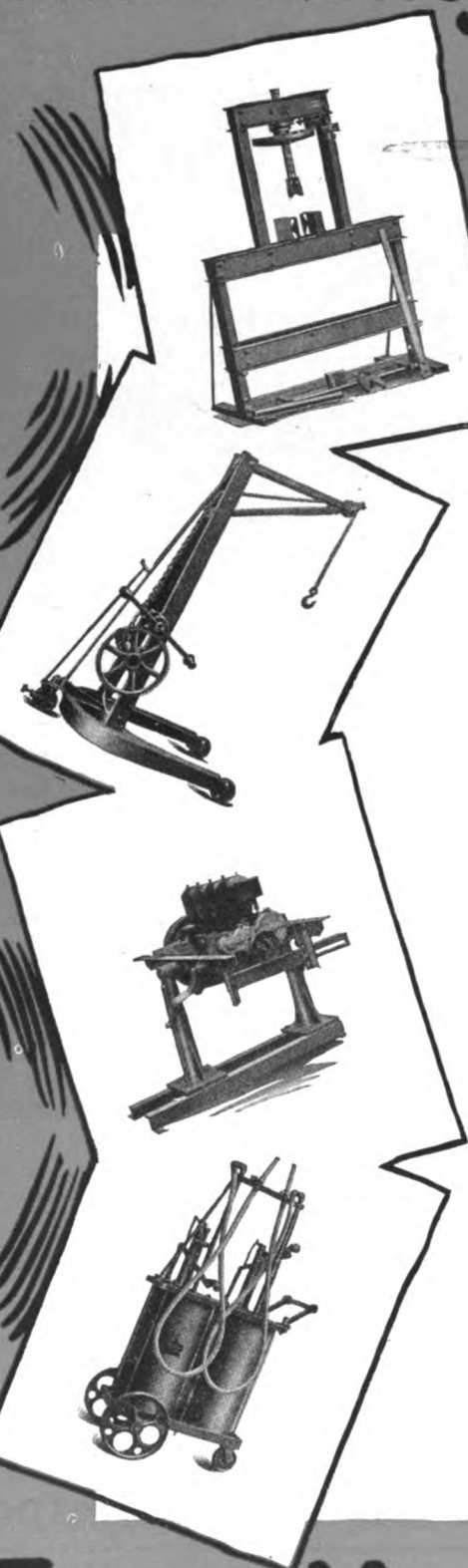
Address .....

City and State .....

My Jobber's Name Is .....

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These Money Makers For Prizes at the Auto Shows



EVERY garage man visiting our exhibit at either the New York or Chicago Show, or anybody upon request, will be given an opportunity to get some of the famous Manley Garage Machines **free.**

We will conduct a contest at both Shows and will give away four of our most popular machines as prizes to the winners. These prizes will be:

One Manley 22-ton Press
One Manley 1-ton Portable Crane
One Manley 2-Tank Oil Service
One Manley Engine Stand

The contest at either Show will be distinct from the contest held at the other. Every visitor can have a chance on all four machines given away at the Show which he attends.

Manley equipment is designed and built especially for garage service and conditions. These specialties have been proven great time and labor savers for garage work in all parts of the country. You should be interested in seeing this line and learning how it will enable you to make money in your business.

Our exhibit will be located as follows:

Chicago Show, Space 10-D, Coliseum Basement
New York Show, Space D-198, 4th Floor, Grand Central Palace

Look us up and remember you may be lucky enough to win the very machine you like best. Don't forget the contest will be on at both Shows.

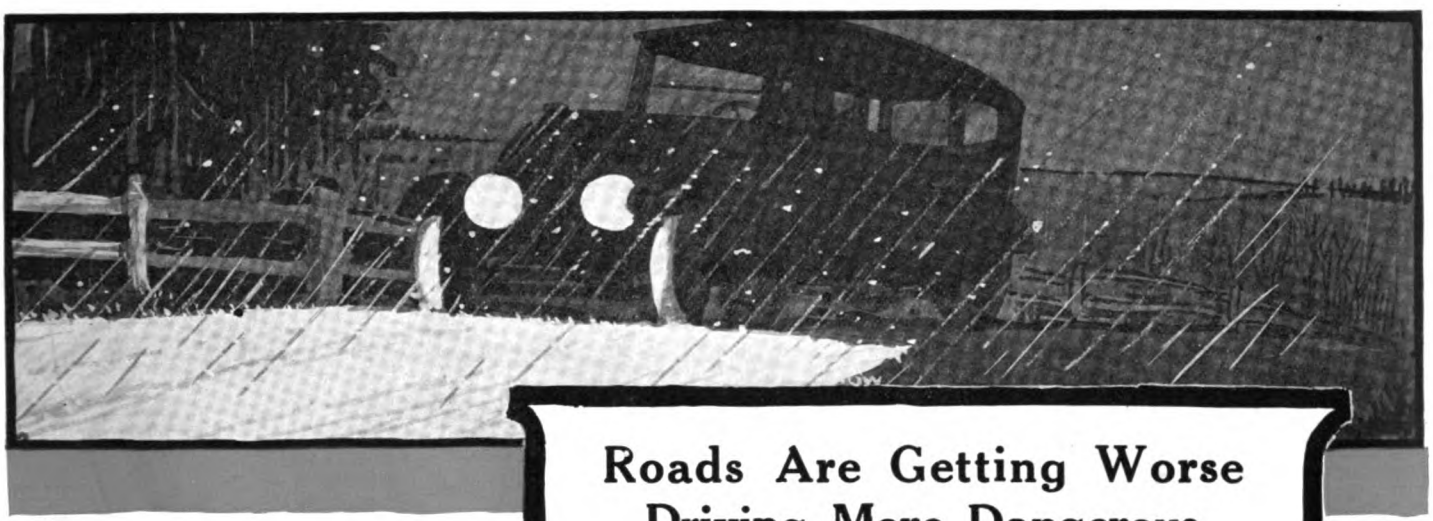
It is not necessary, however, to attend the shows to participate in this contest, but the conditions will be furnished free to any one upon request.

United Engine & Mfg. Co.
Hanover, Penna.

Four Manley Machines To Winners at Each Show

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DILLON MULTI VISION LENS



Roads Are Getting Worse Driving More Dangerous

Sell the Dillon

Here is the lens that science built. Every angle, every curve, every detail has been designed and developed with scientific precision. Hence, the Dillon spells safety. Safety at night, at last, for driver and oncoming motorist alike.

The Dillon is the only lens on the market that successfully eliminates glare without decreasing your range of vision. It actually gives you TWICE THE LIGHTED AREA.

A Square Path of Light—SAFE

The narrow, triangular shaft of light of the average lens is dangerous and does not provide illumination for that part of the road that should be lighted. The Dillon, with its distinctive square path of light, affords illumination for over 500 feet ahead and over 25 feet on either side.

Extensive Advertising Campaign Attractive Selling Helps

The Dillon Multi-Vision Lens is now being nationally advertised in the country's most influential publications. In addition, every advertisement is made **yours** because of our unique trade character, Otto Deeler. We also **help** you by giving you many valuable selling helps FREE. Write at once.

DILLON LENS & MFG. CO.

WHEELING, W. VA.

To the Trade—Write Our Distributors for Liberal Terms



Easy to Sell
Easy to Handle

$3.50 Per Pair

Any Size—Same Price Anywhere

Dealers and Jobbers:

An exceptional proposition is offered the trade, as well as valuable selling helps. Write today for full information.

NATIONAL DISTRIBUTING BUREAU, Inc.

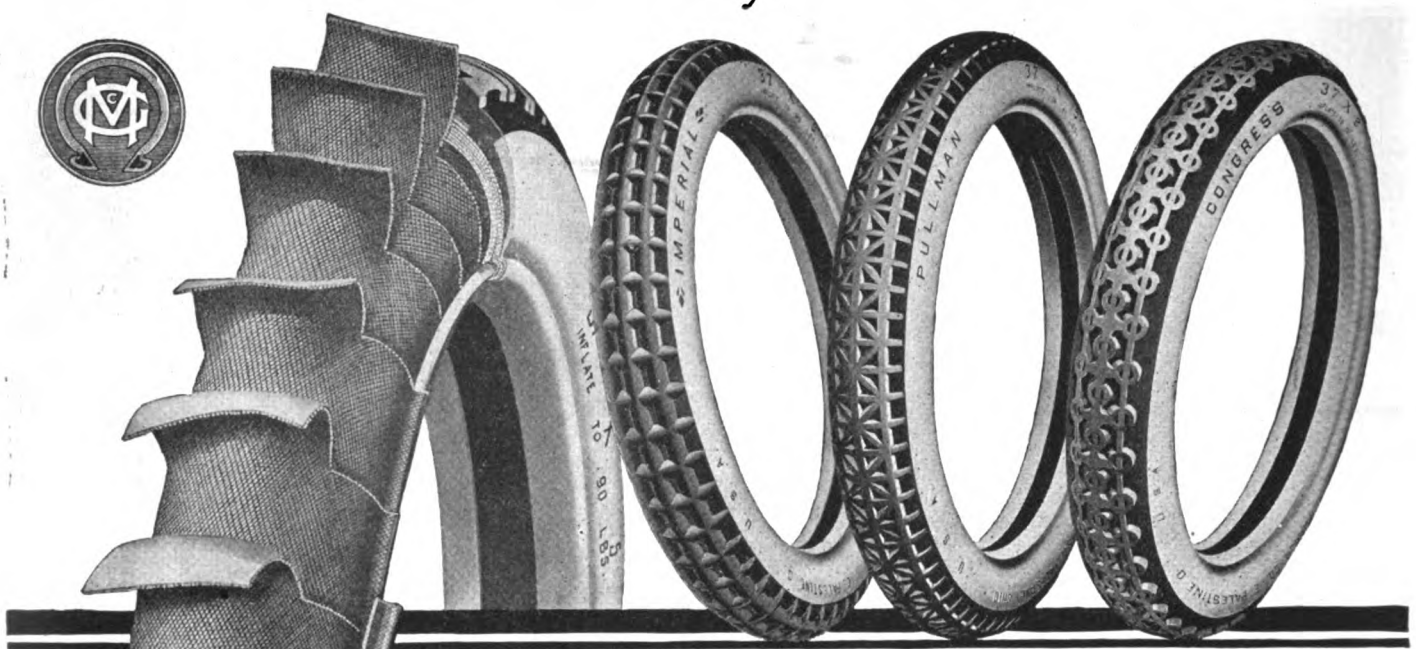
Sole Distributors NDB for the Dillon Lens

241 Oliver Building, Pittsburgh, Pa.

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McGRAW PRODUCTS

Pneumatic Tires ✦ Motor Cycle Tires ✦ Inner Tubes





Value

THE foundations of McGraw value are: 1. Large output, enabling economical production. 2. A high grade tire at a reasonable price. 3. Warranted mileage. 4. Widespread service.

These fundamentals have made the McGraw Plant one of the largest tire factories in America and have built a permanent, profitable business for wholesale distributors through whom McGraw, Imperial, Pullman and Congress Tires and Tubes are sold.

There are other factors also, which emphasize the value of McGraw Products and Policies to the distributor, dealer and user. Let us tell you more about them.

THE McGRAW TIRE & RUBBER CO.

East Palestine, Ohio

Distributing Warehouses ✦ ✦ New York ✦ ✦ Atlanta ✦ ✦ St. Louis ✦ ✦ San Francisco

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Waxit

"NATIONALLY ADVERTISED"

The Polish that Sells Itself and Repeats

A cleaner and polish combined. Used like soap and water—no rubbing necessary. Positively will not collect dust.

CLEANS — POLISHES — PRESERVES

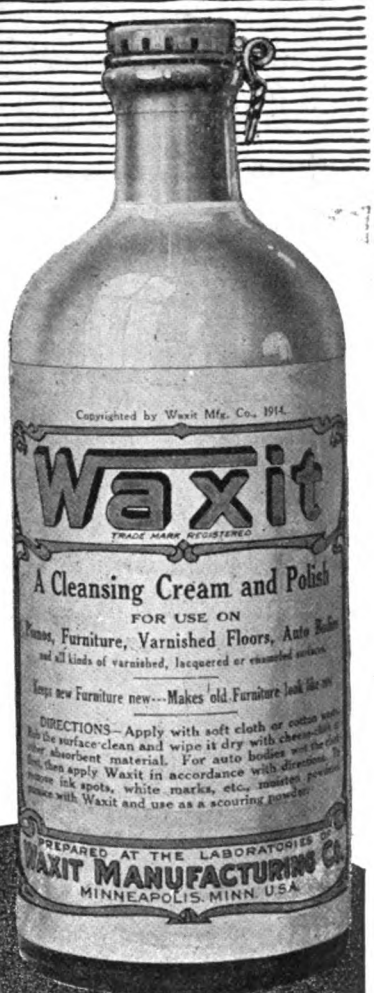
Waxit is a liquid wax polish that cleans as it polishes. No hard rubbing is necessary to get results—spreads easily and wipes dry.

Fine for Leather Upholstery and Linoleum

Extensively advertised nationally in the leading publications.

Big Profits—Quick Turn-Overs on Small Investments
Write for Our Special Offers

Try Waxit on your own car at our expense. Mail the Coupon Now.



Send 10¢ and coupon

Waxit MANUFACTURING Co

1533 OLD COLONY BLD.G.
CHICAGO
ILLINOIS

WAXIT MFG. CO.,
1533 Old Colony Bldg.,
Chicago, Ill.

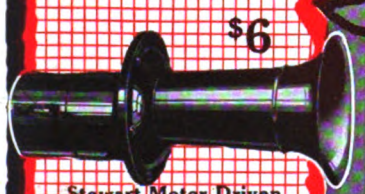
Please send us a full sized 10c package of Waxit and your Special Offers.

.....

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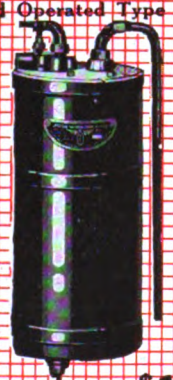
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Stewart PRODUCTS



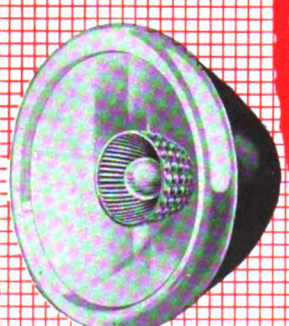
$6

Stewart Motor Driven Warning Signal
Hand Operated Type $3.50



$10

Stewart Vacuum System



Stewart Lens $2 per pair



$25 Stewart Speedometer

Progressive Dealers Know It Pays to Sell Leaders Only

LIVE dealers everywhere—men who do a big business and are making big money—know by experience that it pays to sell *Leaders Only*. They stock, sell and feature Stewart Products. The wide demand for Stewart Products is extremely significant to the wise dealer. It points out to him the unmistakable trend of public opinion—the tremendous demand for the best known and most widely advertised automobile accessories on the market.

The dealer who has achieved really big success does not waste his time, energy and money in trying to "put across" unknown accessories. He banks on a steady, consistent "turnover." He handles the one established line—the one that is universally accepted as a standard. He carries a complete stock of Stewart Products.

Determine right now to sell nothing but Leaders for 1918. Concentrate on, "boost", feature and sell Stewart Products—the fastest-selling and easiest-to-sell of all automobile accessories.

Stewart-Warner Speedometer Cor'n
Chicago U. S. A.



Stewart V-Ray Searchlight $5

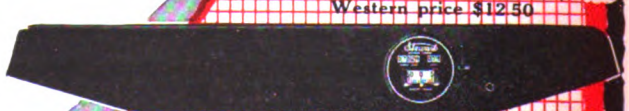


$1

Stewart V-Ray Spark Plug



Stewart Autoguard $9
Western price $9.75
Ford Model $7.50
Western price $8.25
Ford Rear Autoguard Tire Carrier $11.50
Western price $12.50



Stewart Speedometer and Instrument Board for Fords $12
Western price $12.50

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1918 SUCCESS

AJAX

Dealer's Franchise

—means greater Profits in 1918.

Profits—with assured permanency as a dealer and supremacy in your territory. Gives you protection, too.

Thousands of wide-awake dealers have seized this money-making opportunity—have signed as Ajax Franchise Dealers. If you are of the same "on-the-job" type, hook up on this proposition today. The big drive is on. Be first "over the top" in your territory. WIRE COLLECT and learn if your territory is open.

AJAX ROAD KING

gives crowning proof of its superiority ***on the road.*** It's a monarch in quality, a democrat in service. Upholds Ajax reputation for service and endurance under maximum road stress. Never has a tire been so enthusiastically endorsed by user and dealer alike.



97% Owners' Choice

Here's an overwhelming endorsement of Ajax quality. Of the total output of Ajax Tires each year, 97% is the individual choice of car owners, to take the place of tires that came on their cars. Think this over—all but 3%—***owners' choice.*** As an Ajax Franchise Dealer you know what that would mean to you.

Quality a Sure Winner

Ajax quality is a proved winner. You can sell it, as an Ajax Franchise Dealer, against all competition. Ajax Tires, Guaranteed in Writing 5000 Miles, are the stepping stones to dealer success. Ajax Red and Gray Inner Tubes are supreme. ***Learn about them.***

Nation-Wide Advertising Campaign

Ajax will spend hundreds of thousands of dollars in a nation-wide advertising campaign—national media, farm papers, etc., and a complete line of dealer helps. As an Ajax Franchise Dealer you benefit by this greatest of all ***sales*** drives. The time to act is today. Don't fail to ***wire,*** write or send Coupon.

AJAX RUBBER COMPANY, Inc.
1796 Broadway New York

SEND THIS COUPON

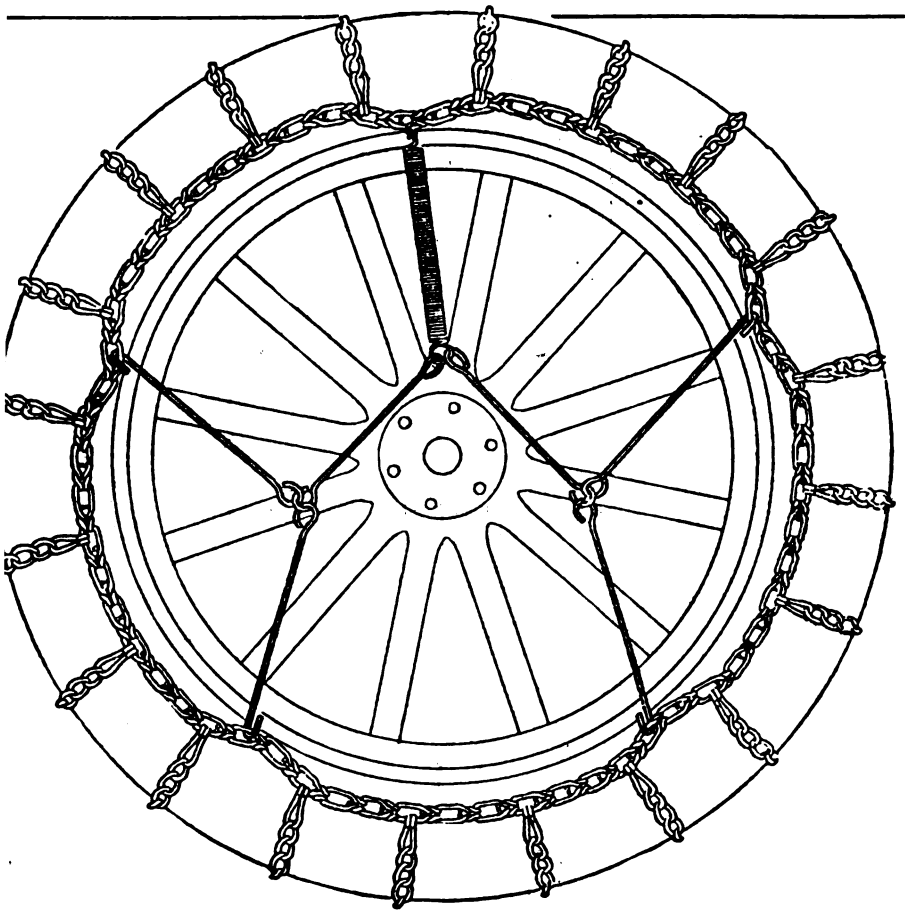
AJAX RUBBER CO., Inc.
1796 Broadway
New York

I am interested in the Ajax Dealer's Franchise. Without obligation to me, send complete details.

Name _____
Address _____
City _____ State _____

"While Others Are Claiming Quality, We Are Guaranteeing It"

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The Fastest Selling Winter Accessory A Dealer Can Handle

Small Investment — Good Profit—Takes up hardly any room—Every autoist needs them—Ought to have them—And has no excuse for being without them at this Price!

MERCHANT'S Anti-Skid Chain TIGHTENER

$1.00 A PAIR

If dealer does not handle, sold direct prepaid on receipt of price.

A glance at the illustration shows how perfectly simple and easy it is to attach this Chain Tightener.

You can take it out and slip it on any customer's car that drives up to your place with chains on. It will take about one minute to do this, and it means a sale **every time.** Once he sees how well it works he will never let you take it off.

And the more you sell the faster they sell, for every motorist that sees them on another car wants them on his own.

This tightener catches the chain at five points (as shown) and gives an easy, steady tension all around. It holds the chain in place, prevents its dragging or rattling, while still allowing it to creep on the tires and carry out to the full its non-skidding action. In fact, it helps this action by preventing the chain from slipping.

It keeps the chain from pounding against the fenders, and obviates the danger of the chain's unhooking accidentally.

JOBBERS—DEALERS: Write at once for full particulars and exceedingly generous terms. Now is the season to sell these things.

M. H. MERCHANT, Manufacturer

J. H. SCHANIEL, Exclusive Selling Agent

236 and 238 Emma Street, Syracuse, N. Y.

Ref.—Syracuse Trust Co.

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"Have used
set of Cork Insert Transmission Linings on my Ford for

10,000 miles

and they are

good as new"

—so writes Edward P. Schafer of Millvale, Pa., and his is a typical Ford owner experience with Cork Insert Transmission Linings. Outwearing two to three sets of ordinary linings, they end the nuisance and expense of frequent replacements. Throughout their long wear they give wonderfully efficient service. They stop the grab, slip and chatter — replace it with velvety smooth transmission action. They eliminate the heavy vibration and strain on mechanism and the Ford rear end. They make the Ford brake *brake*. They require less pressure on the pedal. They permit the hauling of a heavier load. Service considered, Cork Inserts are by far the most economical linings you can buy. Your dealer has them or can easily get them for you.

Dealers: Cork Insert Transmission Linings and Fan Belts give you a line of *good profits* in place of a small margin staple. Sales have jumped ahead every month the past year. Order Cork Inserts from your jobber and cash in on this winner.

Advance Automobile Accessories Corporation
Dept. A 13-1 56 East Randolph Street
Chicago, Ill.



A fast selling non-slip fan belt for Fords

$3 per set of 3

$1 for
1917 models
85c for preceding models

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Over 500,000 Motorists Use It

The fact that over 500,000 motorists are now using the SHALER 5-Minute Vulcanizer is convincing proof of its ever-increasing popularity. Every motorist is a prospect for one of these handy tube vulcanizers—it should be in every car-owner's tool kit—for use anywhere—on the road or in the garage.

On account of the tremendous cost of new tires and repairing, the *demand* for the SHALER 5-Minute Vulcanizer is greater today than ever before.

Regular advertisements appear in the best national and motor magazines throughout the season—motorists are educated to recognize the SHALER and to demand it—to call for it by name.

Sell the SHALER 5-Minute Vulcanizer. Every sale of a 5-Minute Vulcanizer gives you a good profit. Besides, the big resale of patch-and-heat units furnishes you a continuous profit—it brings motorists to your place for SHALER supplies—and for other goods.

As soon as you start selling the SHALER 5-Minute Vulcanizer, new customers will quickly be noticeable—coming to your place for all sorts of supplies and accessories. As a stimulus to enlarge your business and increase your sales—the SHALER 5-Minute Vulcanizer cannot be equalled.

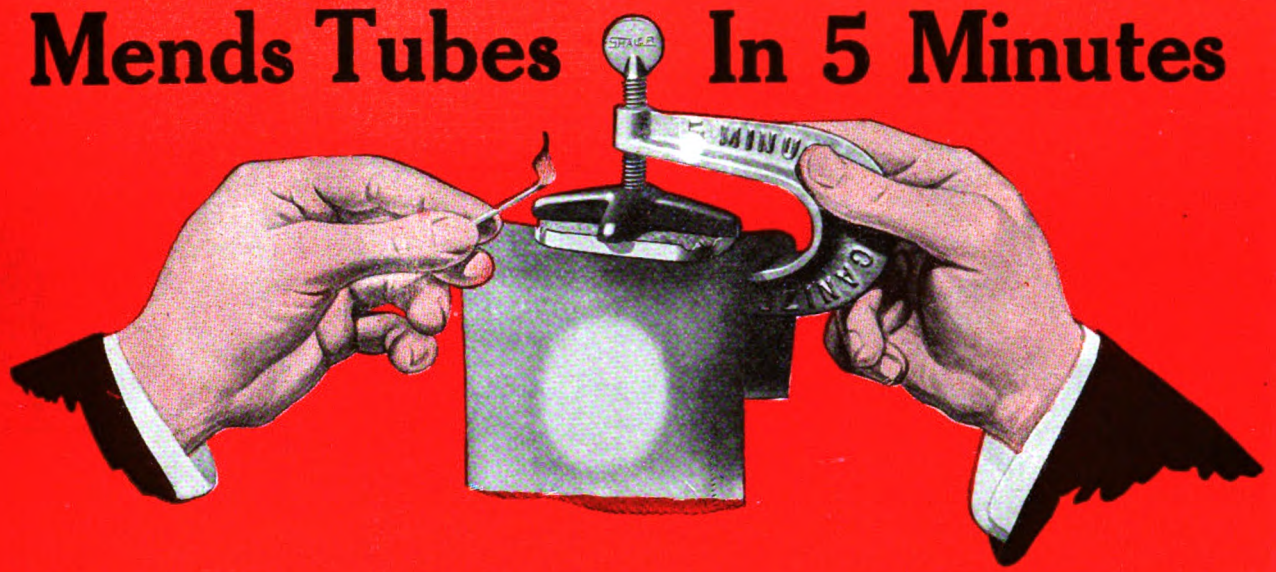
All Jobbers Sell It

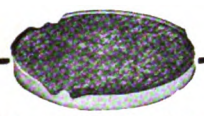
Practically any jobber in the United States can supply you with SHALER 5-Minute Vulcanizers. Our large catalog describes the complete line of SHALER Vulcanizers for motorists' use—also complete equipment for garages and tire repair shops. Mailed free on request.

SHALER

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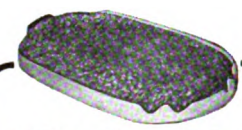
A Match Is All You Need!
Mends Tubes In 5 Minutes





6 Round Patch-and-Heat Units for Punctures
Additional Supply 75c per dozen

Complete Outfit $1.50
Includes
Six Round and Six Oblong Patch and Heat Units



6 Oblong Patch-and-Heat Units for Cuts and Tears
Additional Supply 75c per dozen

The Patented Heat Unit is a combustible disc, chemically treated to give the proper heat without flame or blaze. Works perfectly in any weather, and tubes cannot become overheated or undercured.

The Rubber Patch is of pure para rubber, fabric-backed. It is a unit with the heat disc. This fits over the puncture and the heat of the disc seals the cut with this new tough rubber.

The repair is a permanent one—takes only 5 minutes—and you don't even soil your hands! No gasoline—no cement or flame required. The operation of the SHALER 5-Minute Vulcanizer is entirely automatic—and it works without fail. Furnished with full instructions in neat box—compact enough to fit the motorists' tool kit.

Order From Your Jobber NOW

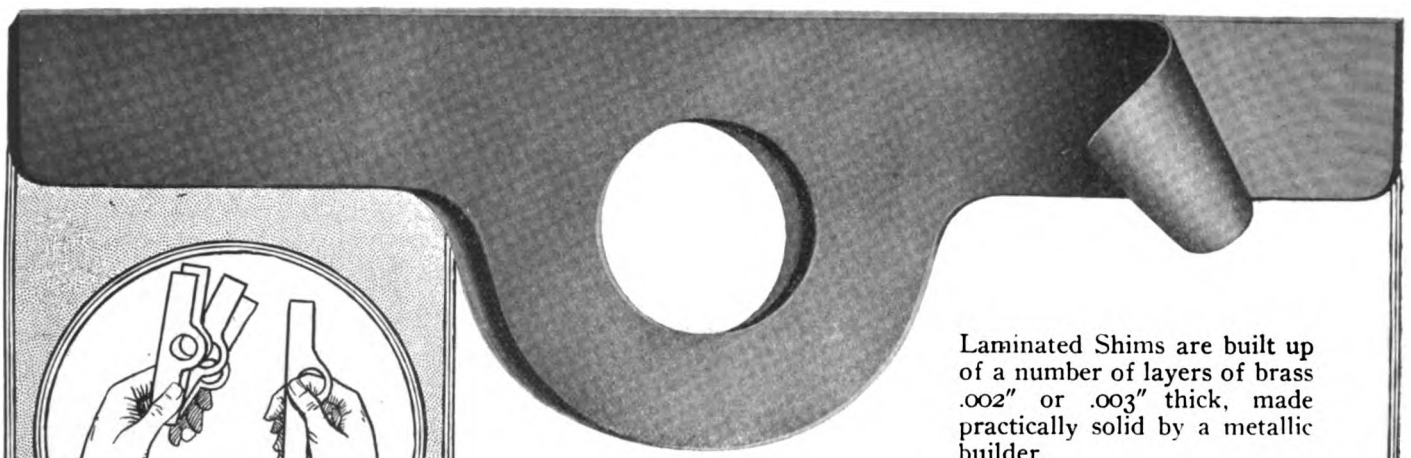
Don't delay! The enormous demand for these vulcanizers makes it necessary to place your order early if you want to be sure of prompt shipments. Order now or make a memo to ask your jobber's salesman about it.

C. A. Shaler Company, 404 Fourth St., Waupun, Wis.

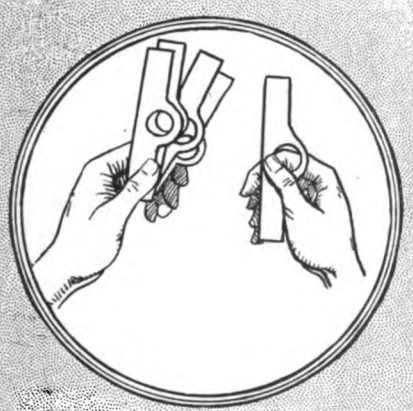
Oldest and Largest Manufacturers of Vulcanizers

5 Minute Vulcanizer

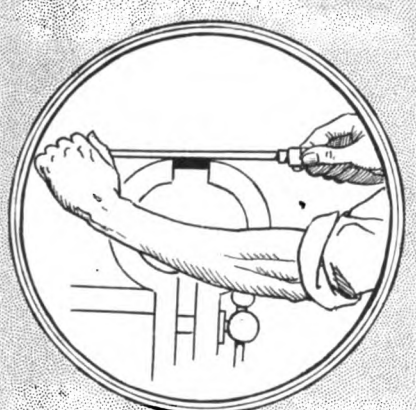
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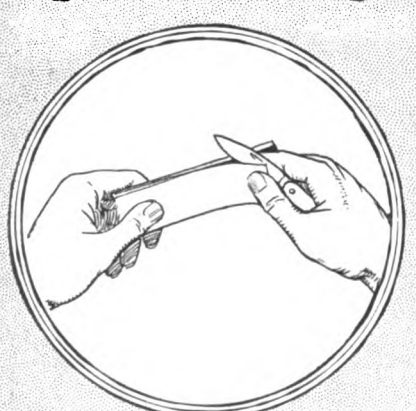
Laminated Shims are built up of a number of layers of brass .002″ or .003″ thick, made practically solid by a metallic builder.



Loose Leaf
Takes Time-Trouble-Labor



Solid
A Bothermaker



Laminum
Perfect Adjustment
Quick-Easy-Uniform

Make Shims the Easy Way

IT takes time to assemble loose-leaf shims. It requires skilled labor to properly file a solid shim. Both operations are entirely unnecessary when Laminated Shims are used. All you have to do is peel off, with a pen-knife, enough layers to secure the required thickness and—**the job is done.** Can you imagine the convenience, the advantages of Laminated Shims?

What is More Important

You have absolute accuracy; mechanical precision; a clean, smooth surface always; your customer gets results which are a credit to you and a satisfaction to him. This means more business. The saving of time and trouble means larger profits with less effort. Enterprising dealers and repairmen, manufacturers and engineers have adopted

LAMINUM
The MATERIAL for SHIMS

because this is the modern, the easiest and quickest way in which to make bearing adjustments and reductions.

Let us send you a trial shim, without charge, so that you can actually test the difference

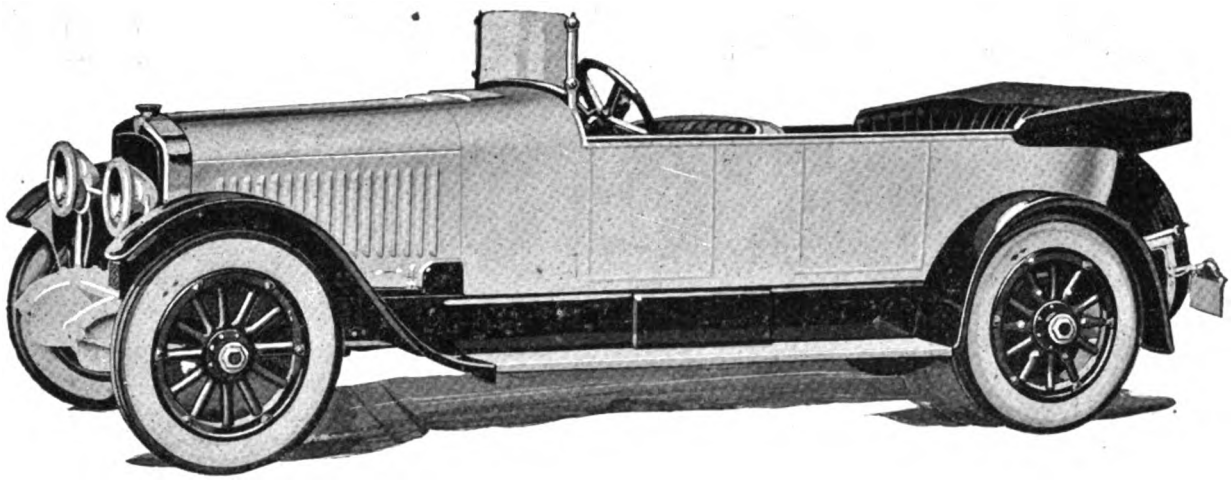
LAMINATED SHIM COMPANY

533 Canal Street, New York

Detroit: Dime Bank Bldg. London: R. A. Rothernel, 6 Great Marlboro' St., London, W.

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DOBLE-DETROIT STEAM CAR



Electrically Controlled Steam

For the first time the crude brute force of steam has been harnessed to the refining influence of electricity.

That is the big basic idea back of the Doble-Detroit Steam Car.

It is the differentiating factor between the Doble-Detroit and other steam propelled vehicles.

In the development of the gasoline car electricity has been the refining influence.

It is the one thing that makes possible the gasoline car in its present highly efficient state.

In the Doble-Detroit Car electricity plays the same vitally important part that it plays in the gasoline car.

It ignites the fuel and starts the car on the pressure of a button.

It makes possible a combustion chamber and generating system of marvelous compactness and efficiency.

It makes possible the use of kerosene or even lower grade and cheaper oil as the sole fuel — without any preheating or vaporizing devices.

It makes possible the automatic control of the steam pressure under varying operating conditions.

And—of course it furnishes an abundance of light for night driving.

In a word in the Doble-Detroit Car the use of steam is refined and simplified. Its efficiency is greatly increased. Its control is made amazingly simple and easy.

Again we want to emphasize that we firmly believe the Doble-Detroit to be the nearest approach to the Ultimate Car that has yet been achieved.

And we base this belief as we have already said upon the actual performance of Doble-Detroit Cars.

Doble-Detroit Steam Motors Co.
Detroit

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DREADNAUGHT TIRES



TOUGH, strong, gripping and enduring is the DREADNAUGHT TIRE, and like the grim Dreadnaught of the sea it has the ability to take care of itself.

DREADNAUGHT TIRES are chuck full of vitality and live to a ripe old age. In addition they lengthen the life of the car itself. Dealers and consumers alike are gratified with the hundreds of uninterrupted miles which DREADNAUGHT TIRES deliver in excess of their Guarantee which is for 5,000 miles. Two famous treads—DREADNAUGHT Reinforced Vacuum Tread and the DREADNAUGHT Ribbed Tread.

The Dreadnaught Tire and Rubber Company
Baltimore, Maryland

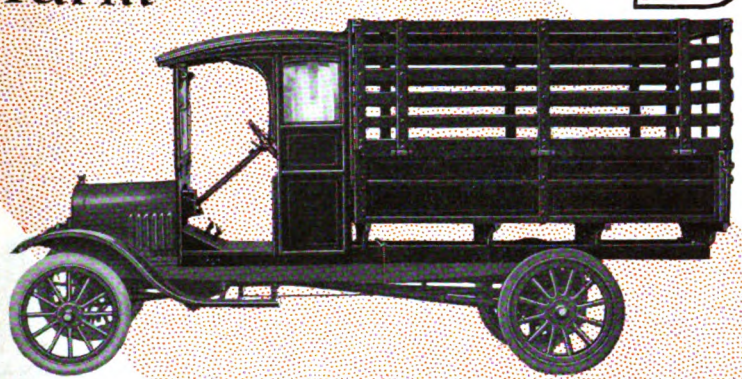
We have an exceptional proposition for dealers and assure excellent service and territorial protection with intensive co-operation from our organization. Write or wire, Department "E."

CHAS. F. U. KELLY, Inc., *Sales Department* 1834 Broadway, New York

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PARRY BODIES for FORD Chasses Everywhere

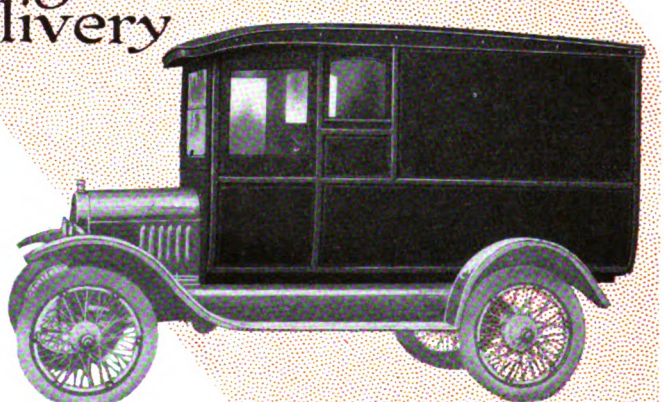
for the farm



for heavy trucking



for light delivery



The Parry Line is a **complete** line —and dealers who handle it have the advantage of being able to offer their customers **any** kind of a Ford Body —whether it be for the farm, for heavy trucking or for light city delivery.

Parry ships bodies the same day as orders are received—thus enabling dealers to promise and make good on rush deliveries. Wide-awake dealers should write for details of the Parry proposition.

There is a Parry Body for every business

PARRY MFG. CO.
INDIANAPOLIS, U. S. A.

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You can keep this child alive!

A cute little codger—not entirely unlike your own youngsters, or perhaps your own grandchild, or maybe a little niece. But she is hungry—more than hungry. She is starving. She needs your help—now—to save her from the terrors of cold and hunger or worse—death.

There are four hundred thousand children like her in pillaged Armenia and Syria, parentless, homeless, underfed—with insufficient clothing to protect their tender bodies from winter winds. **You can** be the salvation of at least one of these innocent little sufferers.

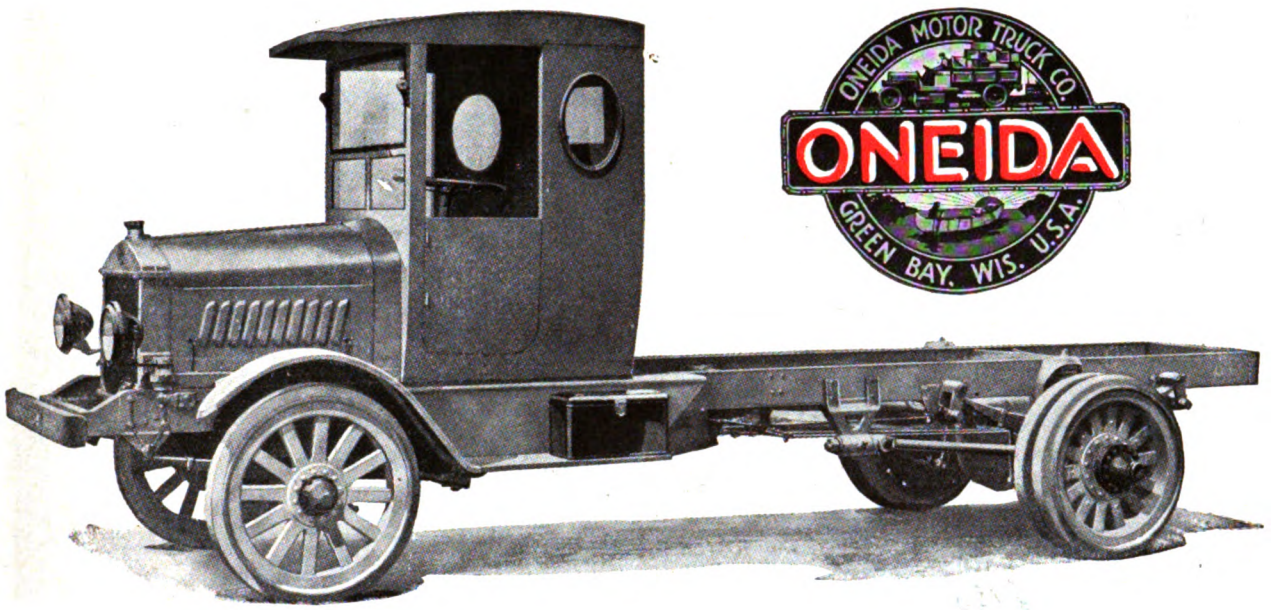
Thirty millions of dollars are needed through the winter to stop extreme widespread of death by starvation and disease in these countries. Private subscription has provided for every operating expense. Every dollar you give goes into actual lifesaving works—is cabled to relief agents to buy bread.

You—a red blooded business man—can not, must not, let this sacred obligation pass your attention. Five dollars a month, less than seventeen cents a day, keeps the spark of life aglow in one child's breast. Act now!

Write the largest check you can possibly afford to Cleveland H. Dodge, Treasurer, 1 Madison Ave., New York City.

This announcement is made on the request of the Armenian Relief Association and is inserted without charge

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FRONT VIEW



REAR VIEW

ONEIDA TRUCKS

1 TON, 1½ TON, 2 TON, 3½ TON

ALL WORM DRIVE

Will Help You Make MORE MONEY in 1918 Whether You Use Trucks or Sell Them

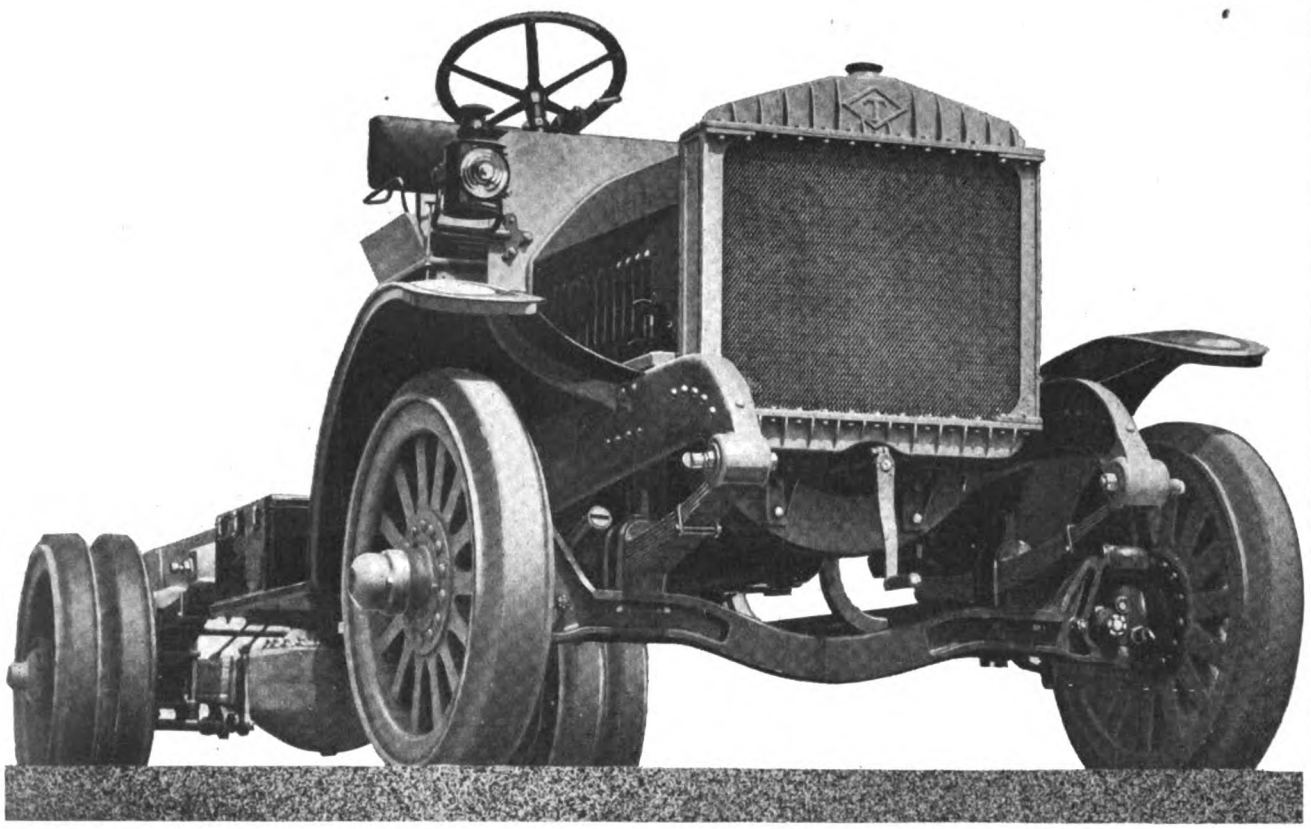
Write for Illustrated Catalog

ONEIDA MOTOR TRUCK CO.
Green Bay, Wisconsin

See Our Exhibit at Milwaukee Motor Truck and Transportation Show, January 23rd to 26th and at 1514 South Michigan Avenue, Chicago, During Chicago Automobile Show, January 26th to February 2d.

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DIAMOND



Five Sizes Now Ready
Made in the Finest Truck Factory in America

Model J-5 One Ton
Model J-4 One and One-half Tons
Model J-3 Two Tons
Model L-B Three and One-Half Tons
Model R Five Tons

This is your big opportunity to double your business. The agency for the DIAMOND T will boost your sales far beyond your present expectations. Write or wire for complete details. Immediate action essential. Don't fail to visit our factory, while attending the Chicago Show—or telephone Lawndale 10200, and we will call for you.

DIAMOND T MOTOR CAR COMPANY

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T TRUCKS



Will Build Up the Business of Passenger Car Dealers

If you are one of the passenger car dealers, who finds himself "holding the bag" this season—there is a way out, with bigger business than ever—and easier.

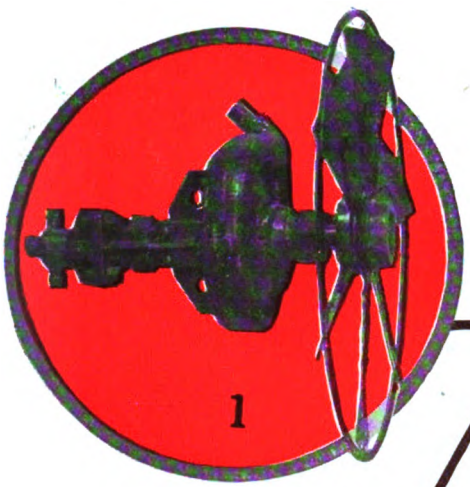
In the forefront of ever-increasing motor truck sales are the sales of DIAMOND T—nationally advertised and distributed—known for success, for years.

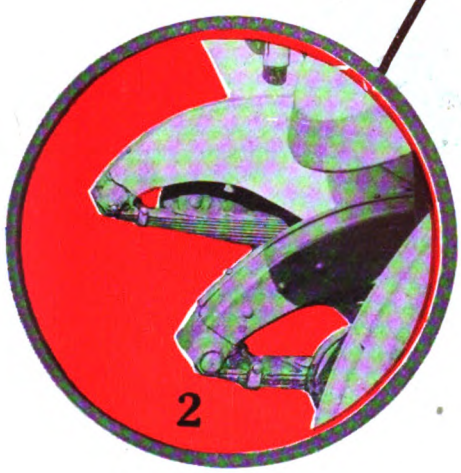
DIAMOND T Motor Trucks added to your passenger car line will round out profits as they ought to be. Passenger car dealers the country over have seen the opportunity and accepted it. Unless you have more passenger car business than you can handle *you need the waiting profits from the DIAMOND T line.*

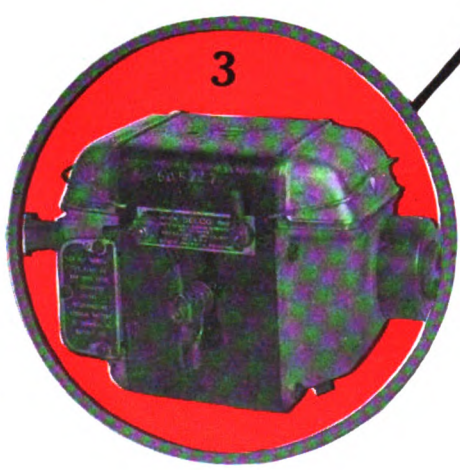
4507 West 26th Street Chicago

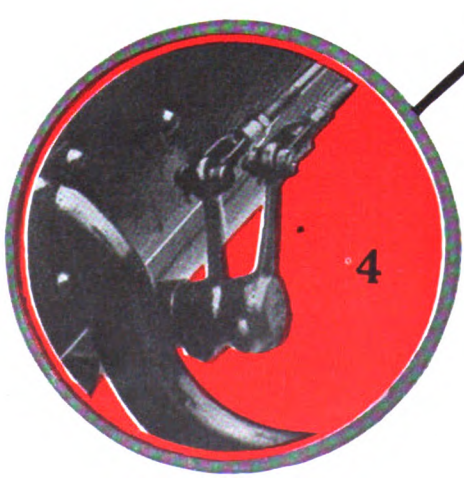
When writing advertisers please mention Motor World—It identifies you

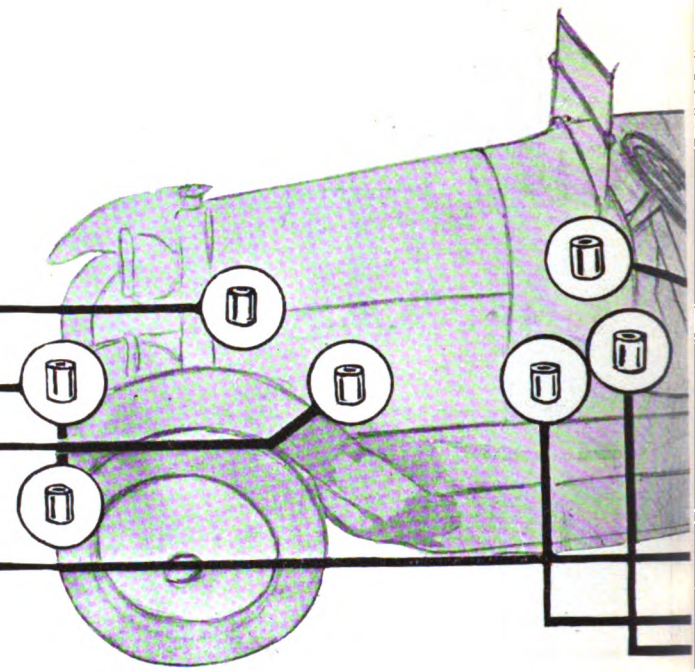
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IT is important to remember that the service life of a car is determined by the life of its bushings.

It is likewise important to remember that the service life of a bushing is determined by the amount of proper lubrication that it receives.

Ordinary bushings, when neglected, quickly wear out and cause early break-downs.

Therefore the leading manufacturers of trucks and passenger cars use genuine graphited oil-less bushings in those important bearing places that are liable to be neglected. In this way they safeguard and prolong the service life of their product.

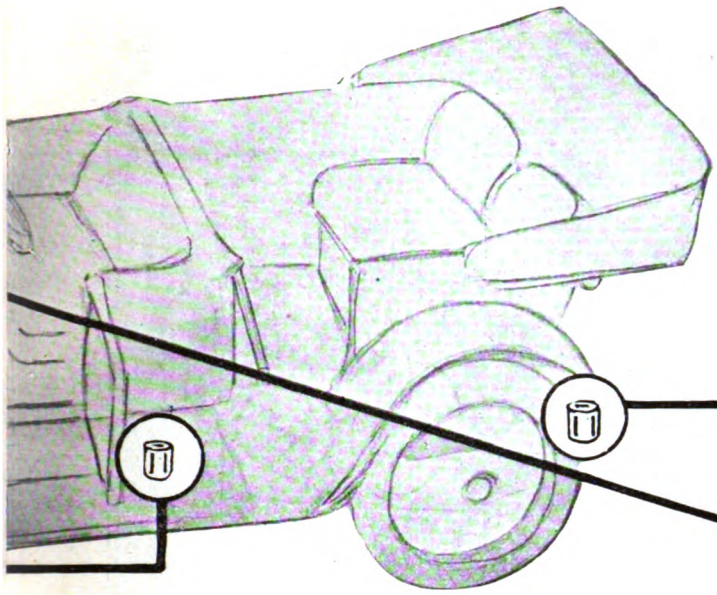
Genuine graphited oil-less bushings are self-lubricating. They are "oiled for life" when made, and though oiling will not harm them, still they will run efficiently and smoothly without oiling or attention of any kind.

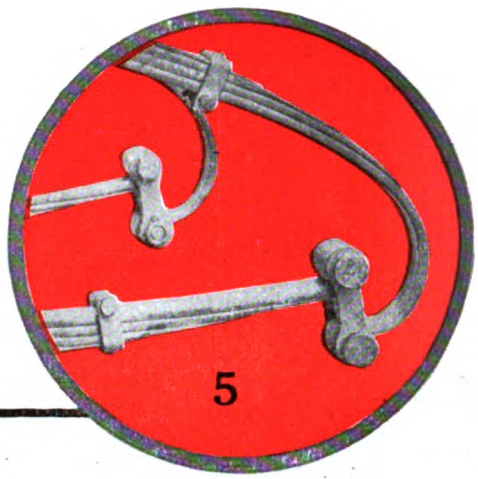
We also manufacture "Nigrum" (Impregnated Iron Wood) Oil-less Bushings.

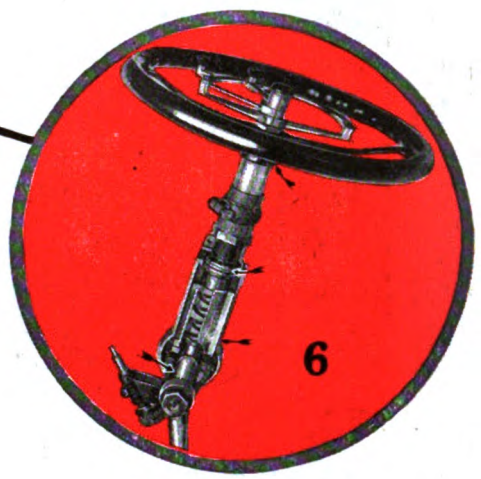
Oil-less
BOUND BROOK

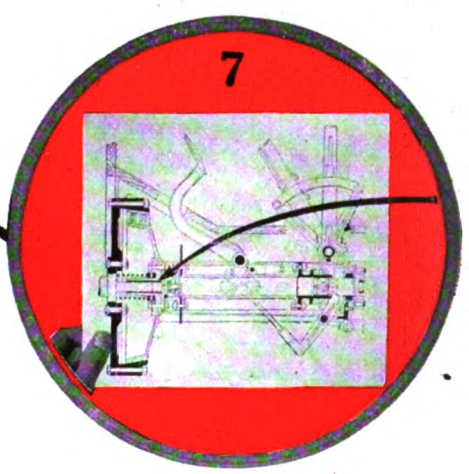
TRADE MARK REG. U. S. PAT. OFFICE

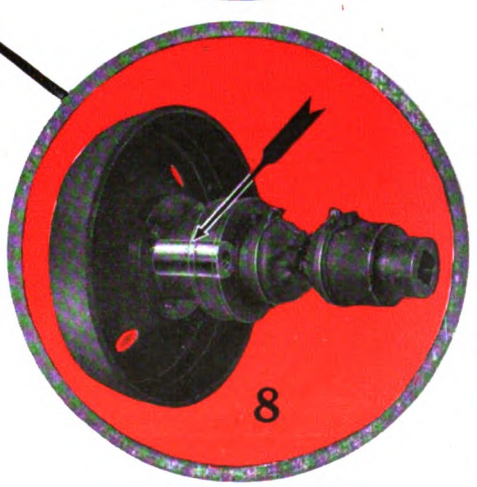
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1—In the water-pump, owing to the impossibility of using oil and grease the use of Oil-less Bushings is imperative.

2—Oil-less Bushings in the Front Springs eliminate the nuisance and cost of grease cups.

3—Virtually all popular makes of starting motors are oil-less-bushing-equipped.

4—Brake Counter Shaft bushings should be "Oil-less" because of their inaccessible location.

5—Oil-less bushings in the rear spring shackles reduce wear and squeaks.

6—Oil-less bushings in the steering column mean a smooth, quick, easy turning column plus insurance against sticking, gripping and quick wear.

7—The pilot or thimble bushing in the clutch is one of the most difficult to lubricate. Oil-less Bushings are used to eliminate these lubrication troubles.

8—Oil-less bushings in the clutch insure long life and smooth service.

BOUND BROOK OIL-LESS BEARING COMPANY

Specialists in the manufacture of Oil-less Bushings for more than a third of a century.

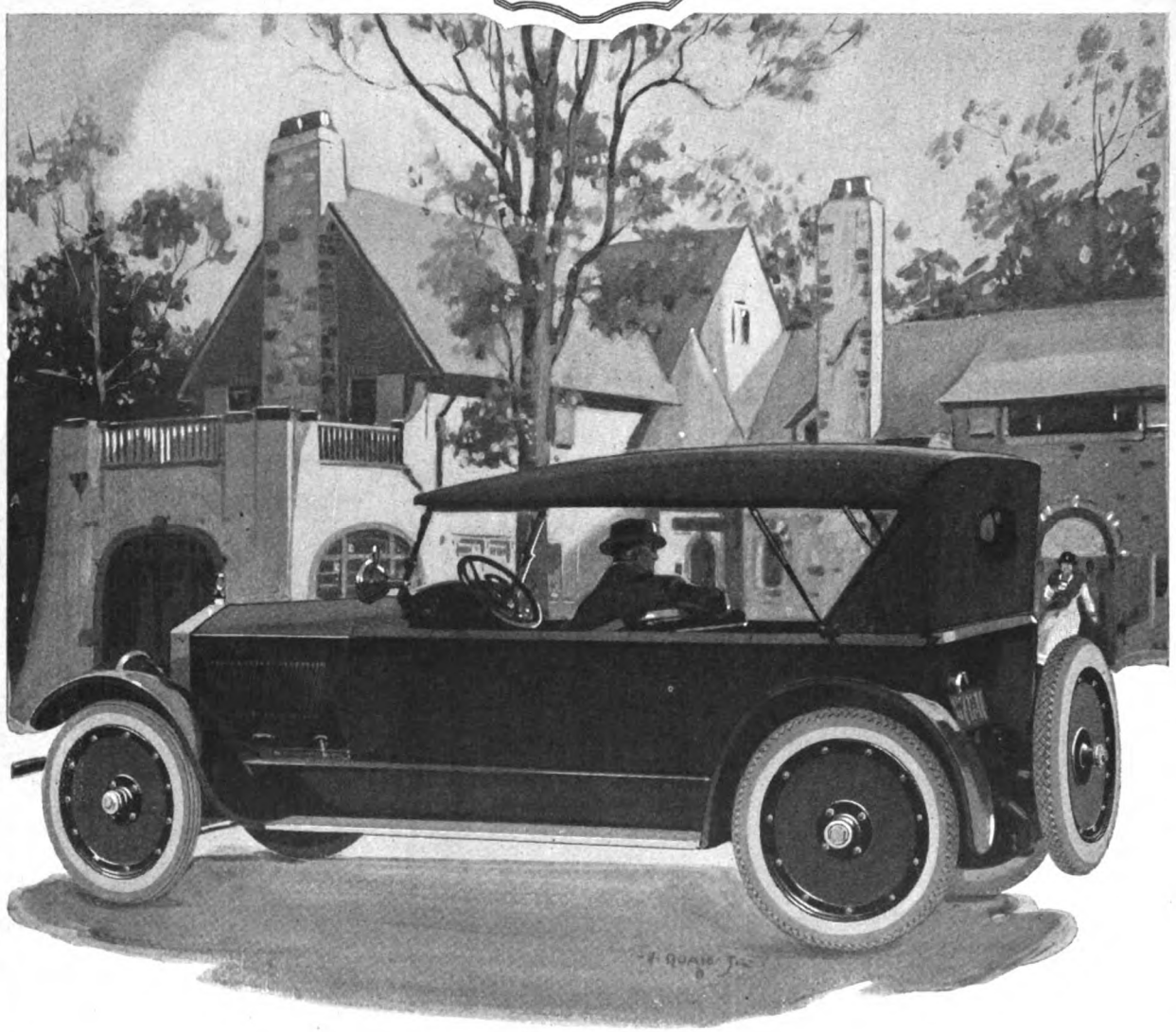
BOUND BROOK NEW JERSEY

Bushings NIGRUM

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DISTEEL WHEELS



DISTEEL WHEELS

Disteel Wheels mark the greatest forward step in wheel construction since the begining of the motor car industry. They are not only mechanically superior, but complete the harmony of motor car design that is the ideal of the discriminating motorist.

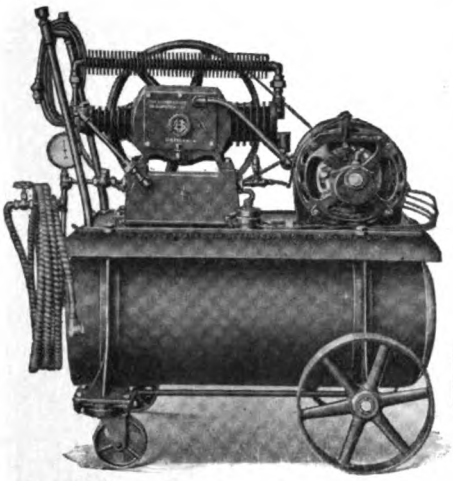
Dealers selling medium and high priced cars are invited to write for our proposition ~ ~ ~ ~ ~ ~

× × × ×

DETROIT PRESSED STEEL COMPANY

1804 Mt. Elliott Ave. Detroit, U.S.A.

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U. S. Two Stage Portable Air Compressor

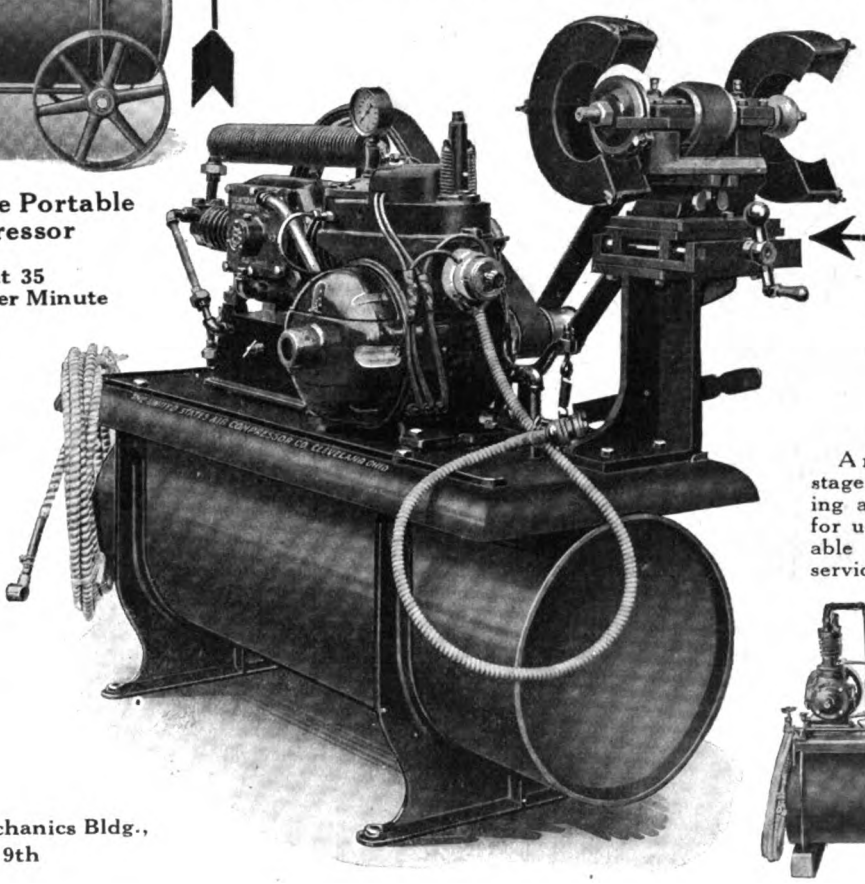
Equipment 35
Cap. 4 Cu. Ft. per Minute

Easily moved from place to place. Adapted for garages where it is sometimes desirable to take the air to the car or for factory use in blowing dust from motors, generators, etc.

This buffing or grinder head is made according to the most approved design and is suitable for handling tire roughing wheels, and polishing or grinding wheels.

It will handle two wheels of 8 inch diameter and the construction is as strong and rigid as could be desired or required.

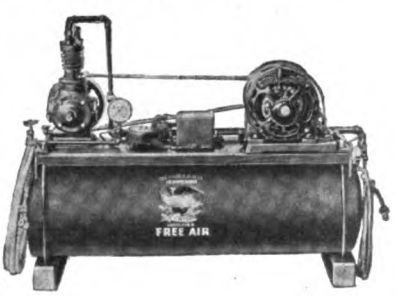
The motor is of sufficient capacity and the entire machine so designed as to permit the compressor and wheel head to be operated together or singly. Automatic controls prevent overcharging of the air tank and the entire construction of the unit is as near foolproof as possible.



U. S. Single Stage Automatic Air Unit

Equipment D22
(Illustrated Below)
Cap. 2½ Cu. Ft. per Minute

An automatic single stage outfit for maintaining a supply of air ready for use at any time. Suitable for garage, free air service, etc.



See Our Exhibit at the Auto Shows

Chicago—Space 3, Coliseum Basement, Jan. 26th to Feb. 2nd

Boston—Space 518, Mechanics Bldg., March 2nd to 9th

A New Money Saver for Garage and Tire Shop

AT the New York Auto Show tire repair and garagemen saw, for the first time, a machine that exactly meets a crying need they had experienced for a long time. This machine was the **DeLuxe Combined Two Stage Automatic Air Compressor and Buffing or Grinder Head—Two Valuable Machines in One.**

Having known the DeLuxe Air Unit for several years as an unequalled success, and seeing the new improvements incorporated in a manner that assured absolutely satisfactory results, it is needless to say that an unprecedented number of orders were placed at once.

Before the addition of the valuable unit described above the DeLuxe Two Stage Air Compressor was recognized as the most highly refined and improved Compressor in existence. With the incorporation of this very necessary unit its advantages are increased manifoldly, which places it in a class unapproached by any similar machine.

Every tire shop requires air facilities and tire roughing equipment while every garage must have free air service and grinding wheel facilities. The practice has necessarily been to buy an air compressor with a motor and a buffing head with a motor or countershaft equipment from which to run it.

This new DeLuxe unit combines all this necessary equipment in one machine, to the definite and valuable advantage of purchasers. It saves the cost of an extra motor, avoids the necessity of buying a countershaft, conserves valuable floor space, saves expense in installation and gives results not only equal but superior to the old method.

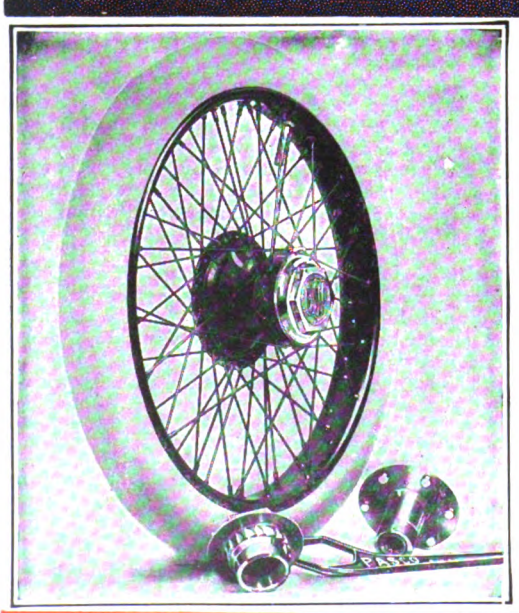
The many advantages of the DeLuxe Combined Two Stage Air Automatic Compressor and Buffing or Grinder Head are described in detail in a special circular just issued. Write for a copy today.

6530 Carnegie Ave. The United States Air Compressor Co. Cleveland Ohio

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PASCO WIRE WHEELS have 3 Exclusive Patented Features in which lies the Secret of their Lightness, Dependability, Utility and Beauty

PASCO TRADE MARK



Note the Simplicity and Accessibility of Parts

The three exclusive Pasco features are of tremendous importance because they affect the entire wheel—make it stronger, more enduring, easier to change and more economical.

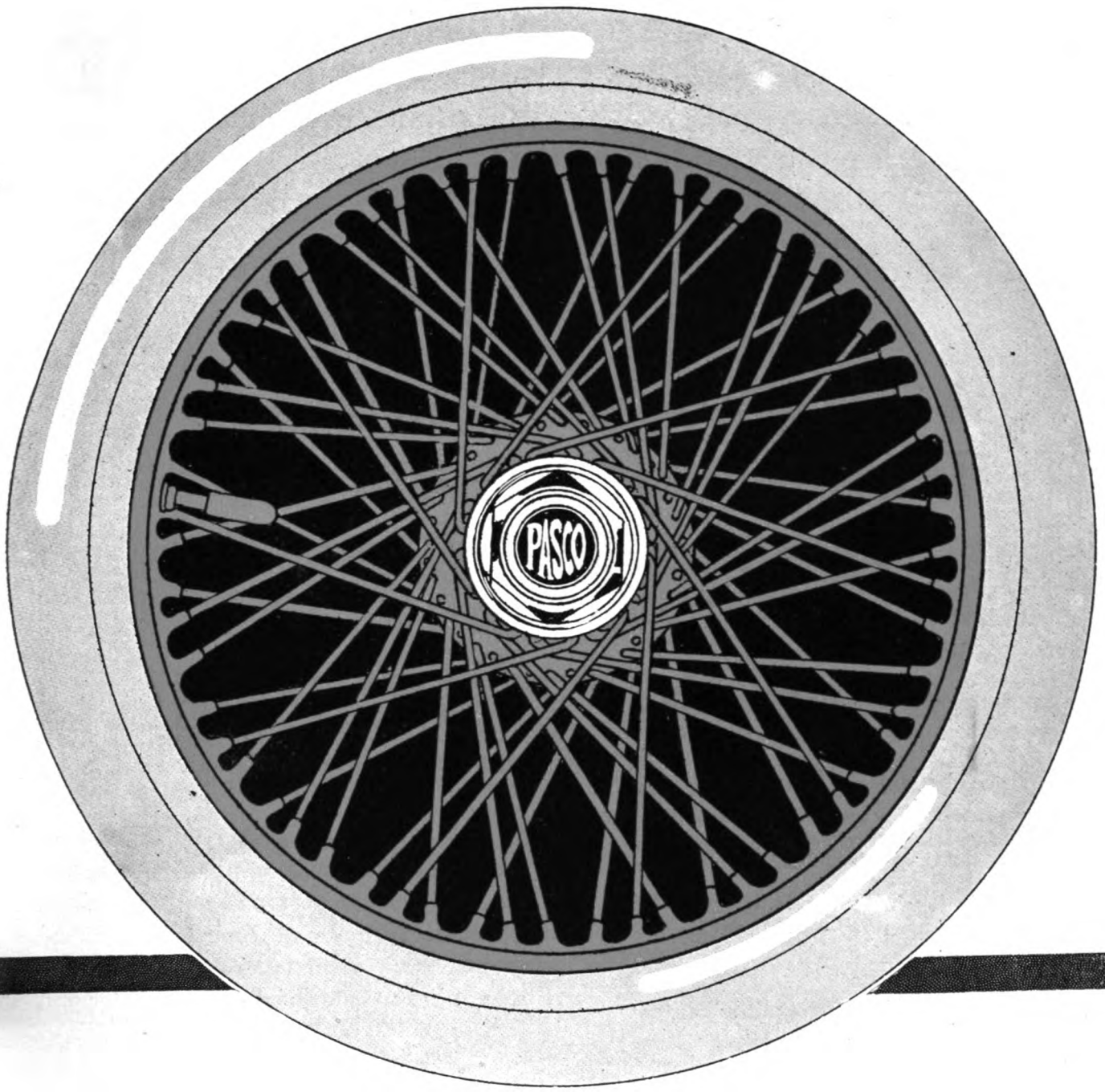
(1) **The Web**—All spokes in the Pasco Wire Wheel cross four other spokes—as against two or three crossed spokes in other makes. This forms a double web which is stronger than in any other wire wheel and 60% stronger than wooden wheels.

This distinct improvement is made possible by the patented four series Pasco method of Rim Punching and Spoke Lacing.

(2) **The Hub Cap** is made of a strong, indestructible metal that stands up perfectly in collisions, due to crowded traffic conditions, where aluminum, brass and other soft metal compositions will strain or break. It is sturdy, massive looking, yet attractive.

(3) **The Safety Locking device** absolutely prevents the wheel from working loose or coming off from a

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moving car. This exclusive, patented feature is positive insurance against accidents from such a cause.

The hub cap and wheel are locked on to the threads of the inner fixed axle with a vise-like grip and can only be removed by using the Pasco wrench.

The tire saving qualities of Pasco Wire Wheels, their lightness, their shock absorbing construction, the speed and ease with which they can be replaced on the road—all these factors make for genuine economy in upkeep cost and a saving in time and trouble.

Pasco Wire Wheels give to a car an air of distinctiveness and beauty and an impression of speed and class which will appeal to all motorists.

Dealers—Write for particulars and prices and our liberal proposition to you.

NATIONAL WIRE WHEEL WORKS

Incorporated) **GENEVA, N. Y., U. S. A.**

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Saxon Sales Bulletin

No. 1 *Issued Monthly by the* SAXON *Saxon Motor Car Corp., Detroit*

A Car and a Company That Command Confidence

Ask a Saxon owner anywhere. Or ask one of the 2000 Saxon dealers. It is as true of the one as of the other.

Either will speak of the Saxon car and the Saxon company in terms of absolute confidence.

As a matter of simple truth the country generally has an extremely high regard for the car and the company.

You'll find it just as strong among people who don't own a Saxon now—but hope to—as among Saxon owners.

You'll find it as marked in metropolitan centers as in the smaller towns and country communities.

This development of public confidence began with the first Saxon car built nearly four years ago.

It has gained in volume and extended itself with each succeeding car that has gone into service.

It has spread further and further until it now embraces well over a hundred thousand Saxon owners.

And it is based solely upon the even, never-changing excellence of the Saxon car.

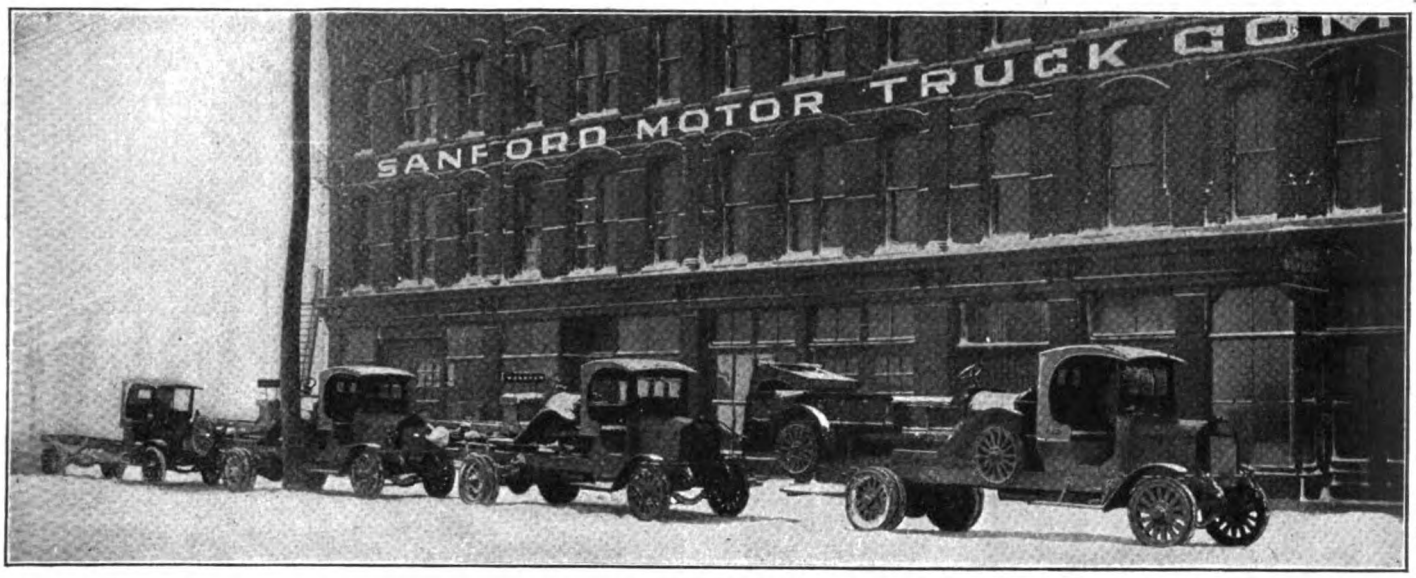
Today, with the motor buying public seeking with greater seriousness than ever before for a motor car of sound and substantial goodness built by a company of equal soundness, it is entirely natural that the sale of Saxon cars should show greater and greater gains.

Mr. Dealer

If you are confident of your ability to handle Saxon sales in your territory, let us know at once, as present uncovered territories will not remain open long. Write the Sales Department at once.

(283)

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A Fleet of Seven Sanford Trucks Leaving the Syracuse Factory for Our Philadelphia Agent
Note the Novel Method of Transporting These Trucks. Three 3½-ton Trucks Are Being Carried by Three 5-ton Trucks.

IMMEDIATE DELIVERIES

We have the answer to your selling problems. It is IMMEDIATE DELIVERIES on Sanford Worm Drive Trucks of 2½, 3½ and 5 ton capacity.

There are still a number of select territories open. So sit down right now and write or wire for our proposition. It is a liberal one.

We are doing big things in the motor truck industry right now, and we are doing them in a big way. We saw the big demand for trucks coming months ago. We prepared for this demand. We doubled our factory capacity. We improved our trucks—if that is possible.

So TODAY we are ready to deliver immediately to our dealers and prospective dealers the best truck on the market—and in the best selling sizes.

And remember that when you become a Sanford dealer you get more than just good trucks. You get an organization of big men, big brains, big capital and service that will back you to the limit.

SANFORD WORM DRIVE MOTOR TRUCK
2½ TON - 3½ TON - 5 TON

Sanford Motor Truck Co. Syracuse, N. Y.

When writing advertisers please mention Motor World—It identifies you

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Red Head

TRADE MARK REG. U.S. PAT. OFF.

Vitristone PLUG



Vitristone is making good.

Vitristone is standing up in motors that are terrors to porcelain plugs.

Vitristone makes porcelain plugs obsolete.

Vitristone is not a substitute—it is the successor of porcelain as a spark plug insulator.

Vitristone is to porcelain what a stone crock is to a China cup.

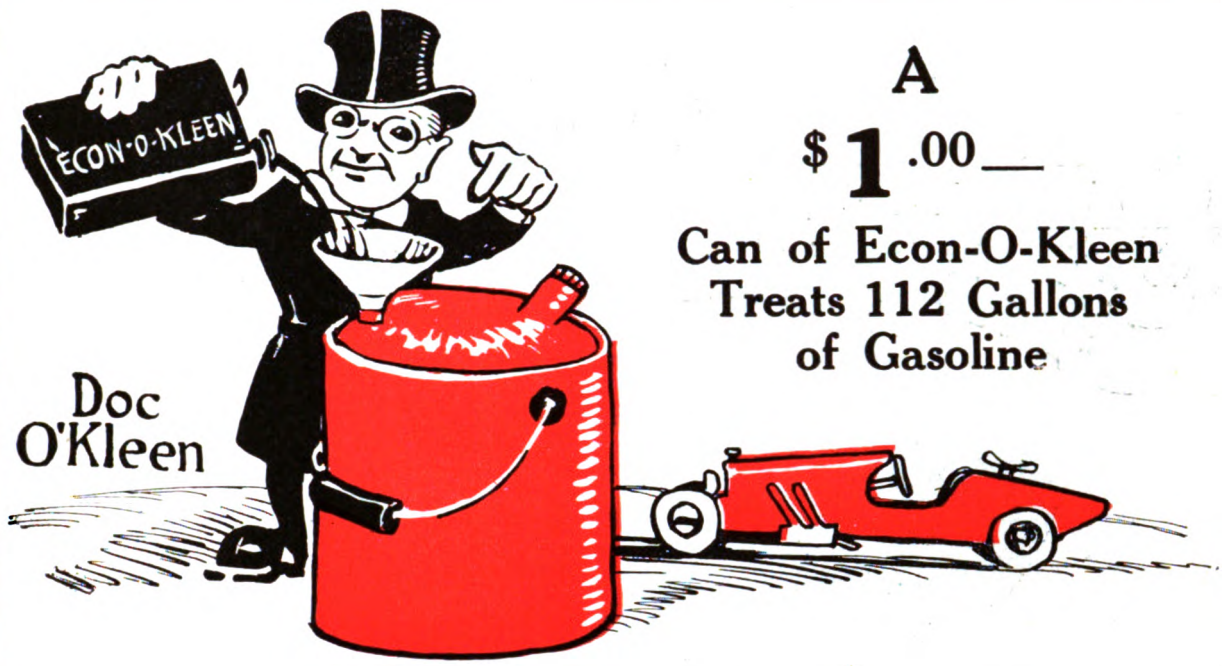
You don't have to pay more for Red Head Vitristone Plugs, but you must buy Red Heads to get Vitristone—it is made for and used exclusively in Red Heads.

When you buy Red Heads, insist on plugs with the red-enameled bushing—as shown in the cut. Only then are you sure of Vitristone.

Emil Grossman M'f'g Corp'n
Bush Terminal
Model Factory No. 20
Brooklyn (New York City)

[See the Red Head Exhibit, Chicago Show, Congress Hotel, Room 1136

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A
$1.00—
Can of Econ-O-Kleen
Treats 112 Gallons
of Gasoline

ECON-O-KLEEN

In The Gasoline

Makes Valuable Savings — Profitable Sales

Cleans the Motor—and Keeps It Clean



800 Cans Sold Themselves Before Our Advertising Began

The Dealer Demand for ECON-O-KLEEN grows daily. Trial cans bring in immediate re-orders worth while. ECON-O-KLEEN sells. Its continuous service, at a saving, results in **continuous sales,** at a profit, that in a year nets dealers more than the old-fashioned ways of decarbonizing. And it costs your customers, individually, less.

ECON-O-KLEEN is **guaranteed** to be non-injurious. Sold everywhere on the basis of satisfaction or your money back.

Use the coupon now for full details, $1 for trial can, and confidential trade discounts. Our advertising is already showing results.

Econ-O-Kleen Fuel Company

Thief River Falls, Minnesota

ECON-O-KLEEN FUEL CO., Thief River Falls, Minn.
Send me complete information and free illustrated literature explaining O-KLEEN.
ECON-O-KLEEN. $1 enclosed is for trial can of
factory. every reason and use for ECON-O-KLEEN. Money back if not satis-
Name .....
Address .....
Check here if you are a
dealer ☐ jobber ☐ or supply-
man ☐. for confidential
discounts.

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Safe as the Hands



It locks itself. When locked all bolts are inclosed —safe against tampering hands.

Passes All Police and Fire Ordinances Everywhere. Good looking nickel finish. Adds to appearance of steering wheel.

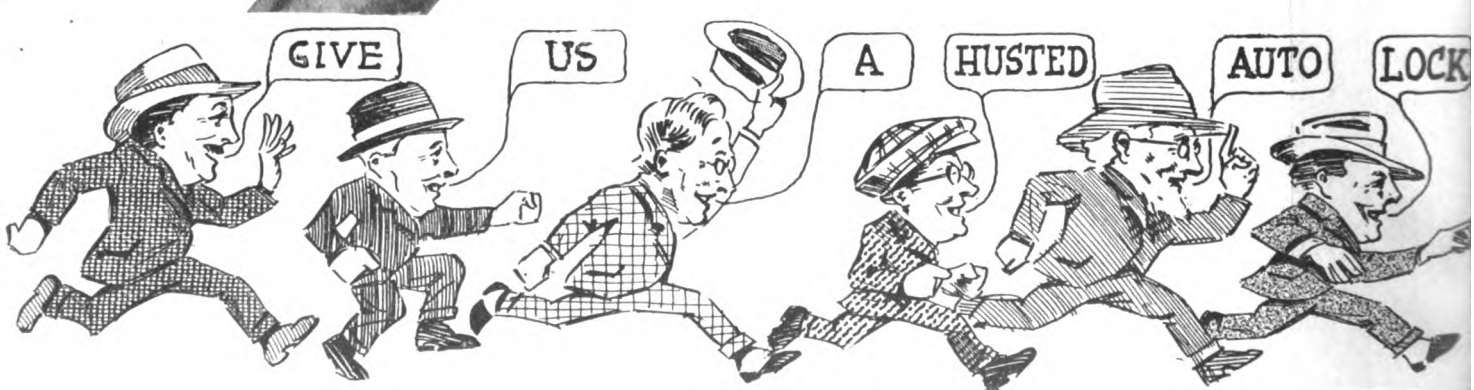
Attached in 2 minutes. Only 2 screws to fasten. No holes to drill.

No two locks alike. Yours has no duplicate.

Screwdriver only tool needed to attach. *No* tool can detach it when locked.

Snaps shut like a steel trap. No part to remove or carry in your pocket; it just folds over out of your way.

No leverage space. Thief cannot get "purchase" for his "jimmy."



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Within of the Law



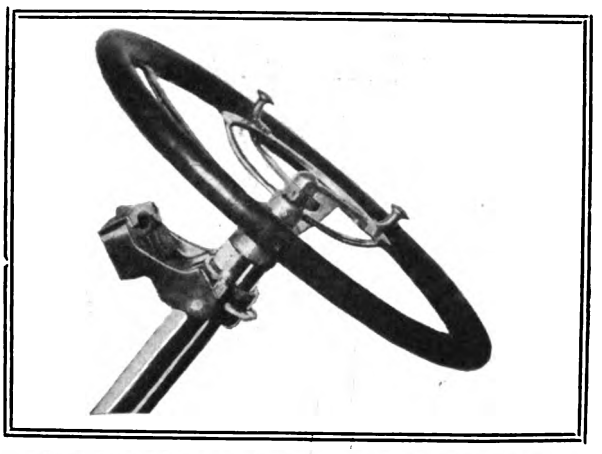
HUSTED AUTO LOCK

ANY LOCK is useless unless thief-proof. An auto lock that is not thief-proof is worse than useless, for it gives you a false sense of security.

THERE IS NO OTHER LOCK like this one. It has every single attribute a real thief-proof auto lock should have. No thief can get at the lock to pick it; he cannot get at the screws to unfasten them. Your car can be shoved backward or forward in a straight line, to comply with ordinances, but it cannot either be driven or towed away.

WHEN LOCKED, screwheads are entirely covered and the lock presents a smooth, hard surface, with no crevice or shelf for thief to obtain a "purchase" on, no room for leverage to pry it apart.

AND IT LOCKS ITSELF. You merely snap it shut. Your key is only used to open it. That's all there is to it. Not so much trouble as an ordinary padlock. Safer, simpler, better-looking than any other auto lock, and right at your hand where you are sure to use it and protect your car against theft.



Here it is when not in use—entirely out of your way.

DEALERS AND GARAGEMEN

Stock up with these locks *now!*

They've got all other auto locks "lashed to the mast." No motorist ever saw a lock as good, as simple or as satisfactory. They sell fast and they mean good, continuous profits. Write today for liberal discounts.

THE HUSTED MFG. CO.

YOUNGSTOWN, OHIO

Gray-Heath Company
Western Distributors
1440 Michigan Ave., Chicago

Asch and Company, Inc.
Eastern Distributors
16-24 West 61st St., New York City

Sanford Bros.
Southern States, Inter-Mountain and Pacific Coast Distributors
Chattanooga, Tenn.



MW—

HUSTED MFG. CO.
YOUNGSTOWN, OHIO

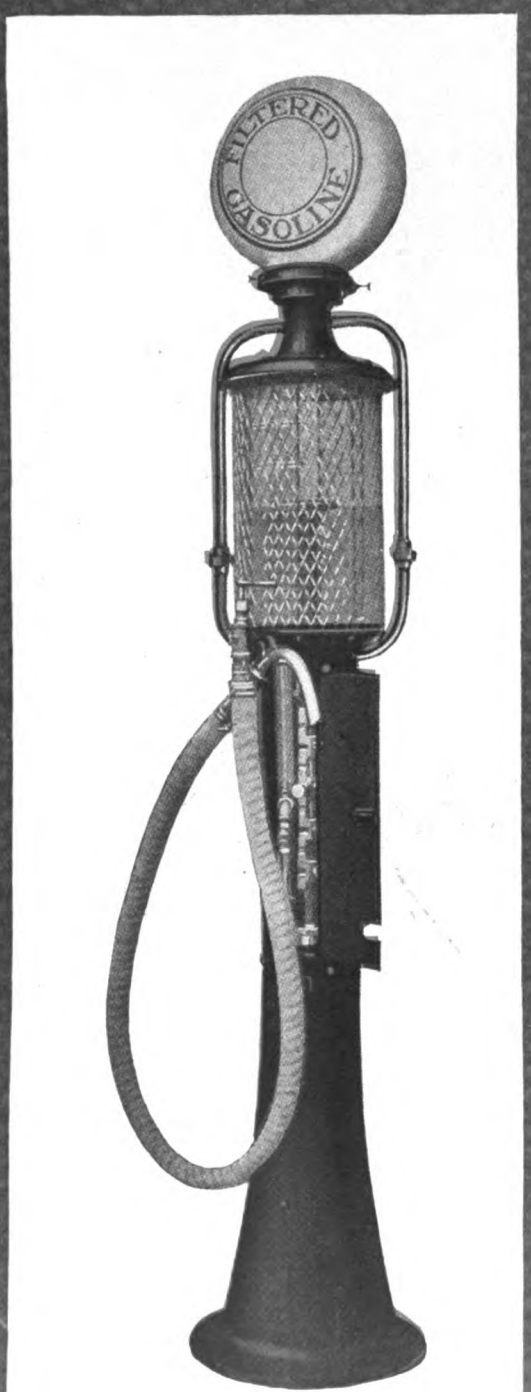
Please send me discounts and full particulars concerning the Husted Auto-Lock

Name.....

Addre s.....

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GUARANTEE
VISIBLE PUMPS



GUARANTEE

For Garages and Filling Stations Where Speed, Accuracy and Satisfied Customers Are Desired.

See Our Exhibit At Chicago Show

HEPBURN WALKER

DISTRIBUTOR

Guarantee Liquid Measure Co.

Farmers Bank Bldg., Pittsburgh, Pa.

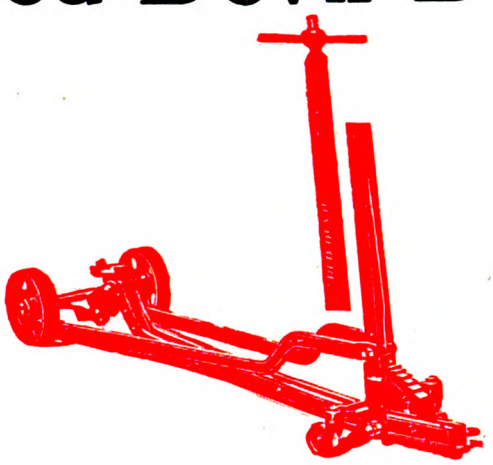
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The Red Devil Dolly Jack

Simple

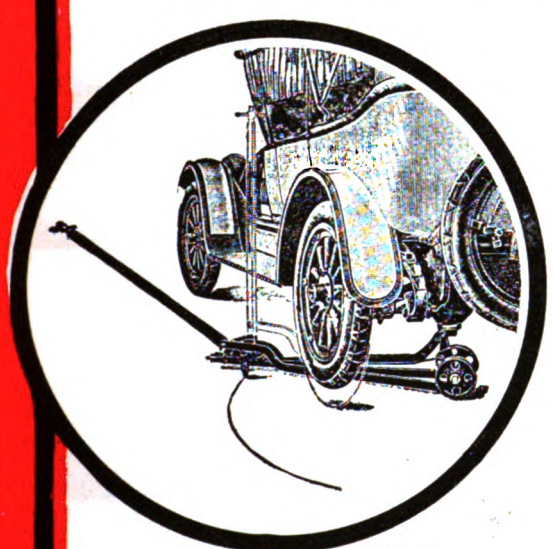
Reliable

Rapid



Invaluable on the Wash-Rack Unloading Cars and in Congested Places

Pays for Itself in the Time It Saves



In Operation Under the Running Board

In less than the time it takes to get the old-style jack set the RED DEVIL DOLLY has the wheels in the air.

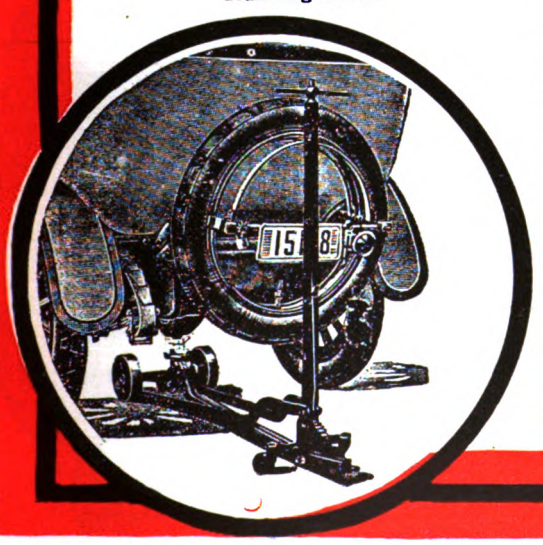
Does away with the necessity of crawling under cars. Sets firm and rigid on a base that cannot tilt and drop the car while you are raising or lowering it. Equipped with castors that roll under the axle where you want to work, while you stand up straight at the side, back or front and operate it with a convenient, long lever arm that makes it easy to lift the heaviest, worst balanced load.

The RED DEVIL DOLLY Jack—the fastest jack in the world—is already

In the Best Equipped Prosperous Garages

Castings are of crucible steel, the toughest material known. The large wheels, roller bearing, steel bars of mild steel. The RED DEVIL DOLLY JACK is fully guaranteed by the manufacturers.

Everything that saves your employees' time, makes money for you. The RED DEVIL DOLLY Jack saves hours every day. It PAYS FOR ITSELF IN A FEW DAYS, then continues to pay big dividends.



Write for free illustrated literature, price and complete details.

Mid-West Manufacturing Co.
Factory and Branch Office,
Minneapolis, Minn.

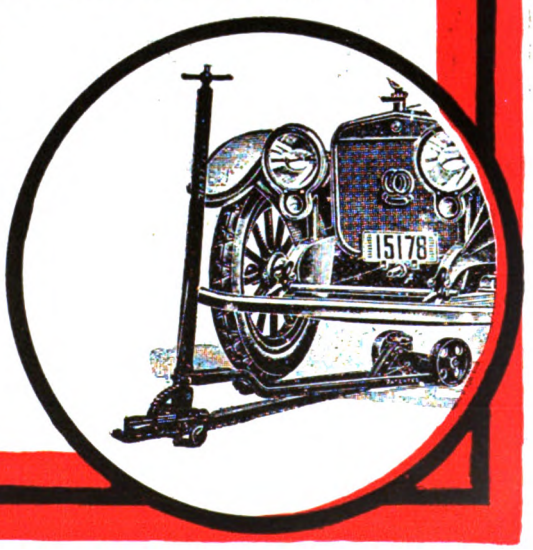
Main Office,
Sioux Falls, S. D.

G. A. Ashton Company,
1547 University Ave.,
St. Paul, Minn.
Northwest Distributors.

R. S. Longstaff,
San Francisco, California
Coast Distributor.

Operates Under Any Height of Axle or Differential

In Position to Raise the Front of a Car



When writing advertisers please mention Motor World—It identifies you

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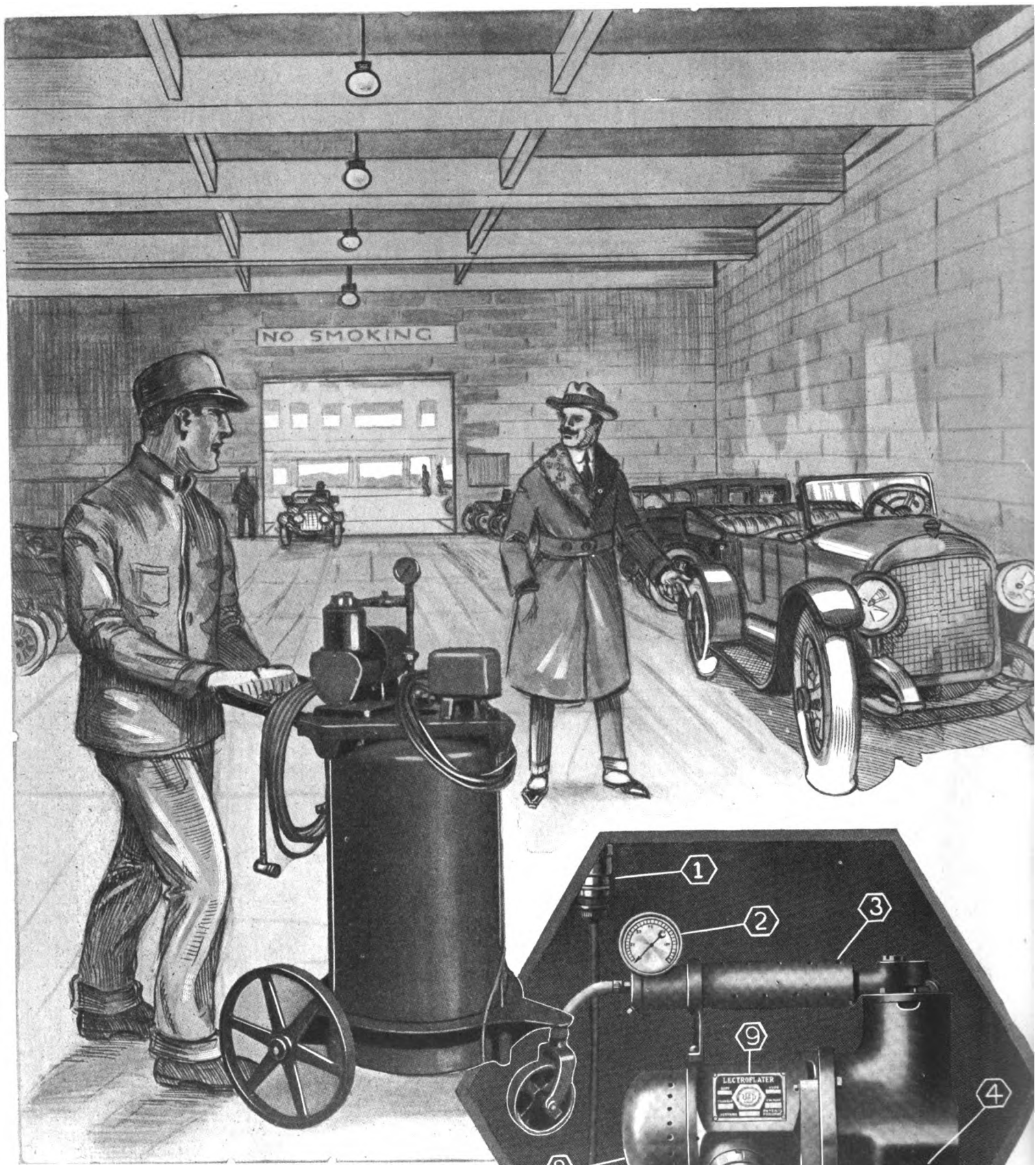


Illustration shows No. 2 Lectroflater Portable Tank Outfit in use

1. *Runs from any electric-light socket, A.C. or D.C.*
2. *Strong, accurate pressure gauge.*
3. *Condensation Chamber. This removes all moisture from the cooled air.*
4. *Transmission automatically lubricated. Requires no attention.*
5. *Wall Brackets furnished with No. 2 wall model.*
6. *Switch.*
7. *Protected Cable.*
8. *Commutator Brush Cover.*
9. *Motor Housing.*

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Is Your Air Service Equipment as Modern and Efficient as the Rest of Your Business?

The calibre and efficiency of your business organization is reflected by the kind of service you render.

It is important, therefore, that your free air equipment be thoroughly modern, and exactly suited to the requirements of your particular business.

LECTROFLATER Pumps and combination units are, we believe, the most modern, most highly developed and finely built air pumps on the market today.

LECTROFLATER Pumps possess many advantages not to be found in other compressors and because of the completeness of the line, permit the selection of a unit specially built for your business.

Note These Big Advantages

LECTROFLATER Electric Air Pumps consist of a motor and compressor, combined as a single unit and self-contained in a single cast housing.

Consequently a LECTROFLATER Pump is complete when you receive it and ready for work the instant it is unpacked.

LECTROFLATER Pumps are built in three sizes or capacities and all incorporate the same exclusive and patented principles of construction.

These Exclusive Features Include:

1. Special compensating motor windings—permit the use of either alternating or direct current from any electric light socket—a big advantage should you ever move where the form of current is different.

2. Grease—*not* oil lubricated. No oil level to maintain. No oil spray to ruin tires. This system of wick lubrication requires repacking with grease only 4 times a year and overcomes the nuisance, uncleanliness and destructive features of splash or forced feed lubrication by oil.

3. Cooling accomplished by forced air draught—no water to freeze or evaporate. No dependence placed on natural radiation of heat.

   Pumps never overheat even when operated continuously against high pressure.

4. Compactness—In size LECTROFLATER Pumps are far smaller than other pumps of the same capacity. The motor is built integral with the compressor, thus conserving space, eliminating many parts and greatly reducing power loss.

5. Fool-Proof—All working parts are enclosed in a single heavy metal housing—no exposed wheels, gears, shafts or pulleys and no chance for dirt to affect working parts. No danger of accident to operator.

Many Outfits to Choose From

There are big outfits and little outfits,

—outfits that cost no more than $65.00.

—self-contained De Luxe Curb Outfits.

—Automatic tank and pump combinations, made vertical to take less room.

—units that can be carried about like a satchel.

—outfits that can be pushed about like a cart.

—tireshop outfits that can be mounted out of the way on the wall.

—outfits mounted on light vertical tubular frames like an adding machine.

—units for outdoor use and units for indoor use.

—units finely finished for use in show rooms or business places.

—units of almost every kind of prices to fit most every pocketbook.

Write Today for Catalog and Descriptive Literature

Jobbers: Write for Selling Proposition.
Dealers: Catalog electrotypes and catalog pages furnished free upon request. Literature for circularizing available.

The Black & Decker Manufacturing Company

107 South Street **Baltimore, Md., U. S. A.**

Distributors in Canada *Northern Electric Company* LIMITED **Montreal**

English Distributors, R. A. Rothermal, 18 Poland St., Great Marlboro, London, Eng.

LECTROFLATER
ELECTRIC AIR COMPRESSORS

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Seal-Tite PISTON RING

PATENTED JAN 1915

TRADE-MARK NOTE THE SEAL



Go Over The Top

with **Seal-Tite**

The Ideal High Compression

PISTON RING

DEALERS—Now is the time to go over your stock, and check up on the necessities you need for overhauling-season demand.

More cars will be overhauled this winter and spring than ever before. The demand for Piston Rings will set a record that's new.

Look on your shelves for SEAL-TITE Piston Rings. Are they there? If not **see your jobber today.** This one-piece, oil-proof ring will lead this spring. Your jobber will tell you so.

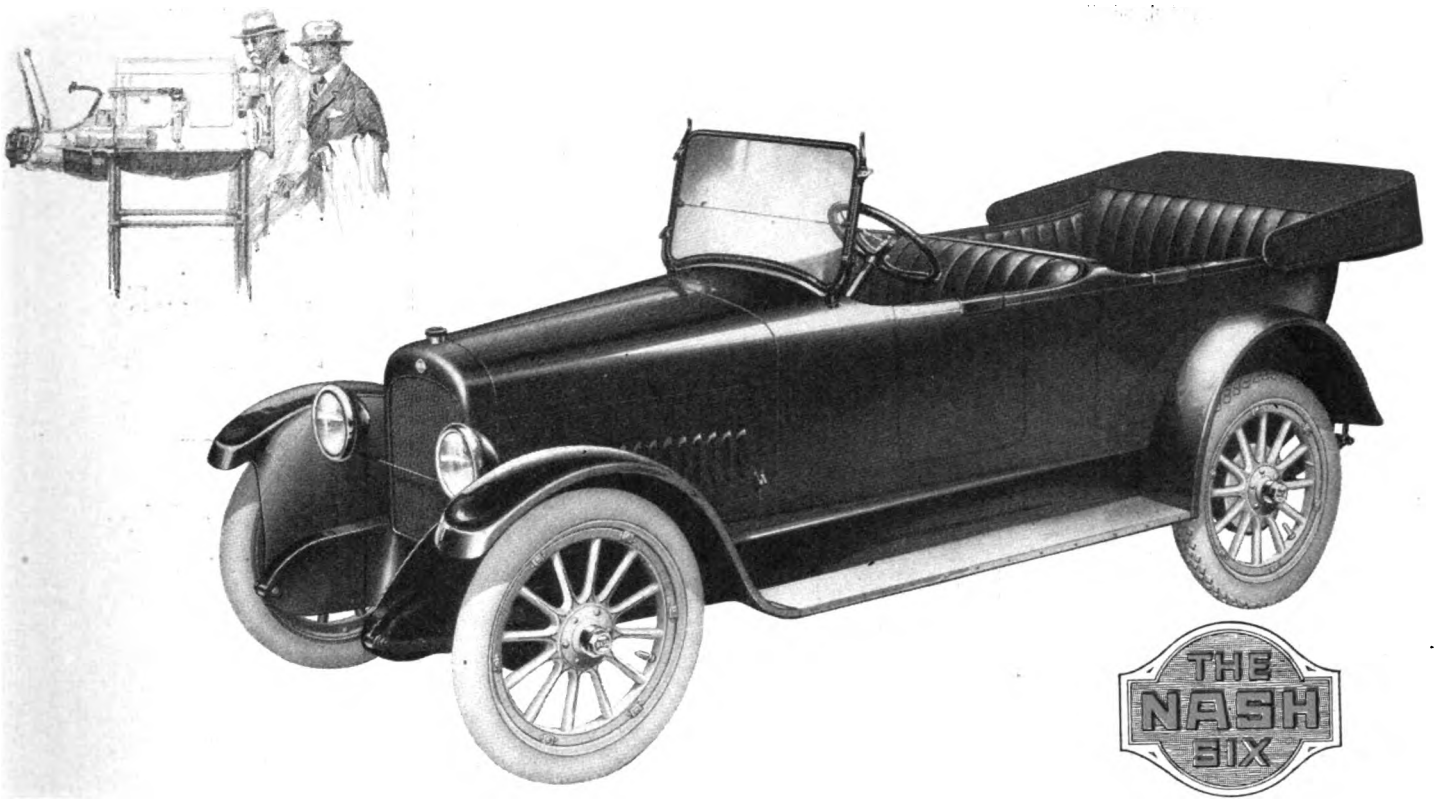
Advertised to the owners who buy. SEAL-TITE Piston Rings and Dealers are ready for the big drive over the top for profits.

Write for free illustrated literature, complete details and liberal discounts.

SEAL-TITE PISTON RING COMPANY

Minneapolis, Minnesota

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SO generally has the Nash *perfected valve-in-head motor* gained recognition as a distinct advance in motor engineering, that at the coming automobile shows, it seems certain to be the centre of attraction for all motor car buyers, thus making the value of a Nash franchise more than ever apparent In every particular, in every section of the country, the Nash Six is proving itself the unusually good car the motor public looked to this organization to produce.



Nash Four-Passenger Roadster, $1295 F. O. B. Kenosha

The Nash Six Five-Passenger Touring Car, Four-Passenger Roadster, Sedan and Nash Seven-Passenger Touring Car will be exhibited at the Coliseum, Chicago, January 26th to February 2nd, and at the various automobile shows which follow.

5-Pass. Touring Car, $1295; 4-Pass. Roadster, $1295; Sedan, $1985; 7-Pass. Model 671, $1465; F. O. B. Kenosha

THE NASH MOTORS COMPANY, KENOSHA, WIS.

Manufacturers of Passenger Cars and Trucks, Including the Famous Nash Quad



Nash Sedan, $1985 F. O. B. Kenosha

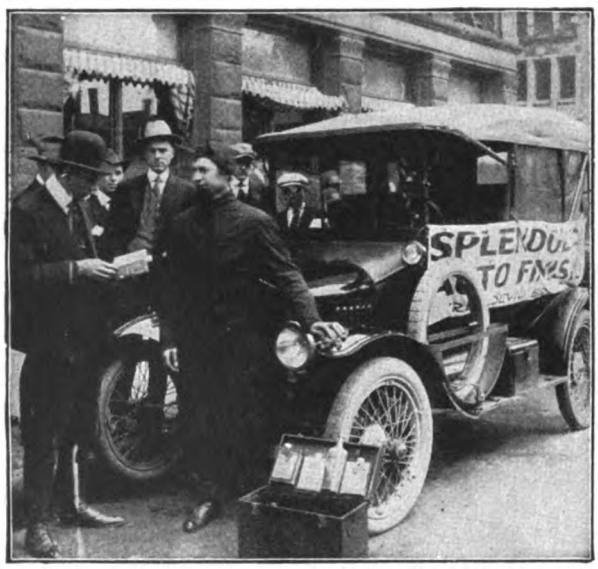
NASH MOTORS

VALUE CARS AT VOLUME PRICES

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A "Red Man" Street Demonstration of SPLENDOLA Cleaner and Finish



Free to Dealers Handling Splendola

Write or Wire Today

NOTICE: This method of street demonstrations and advertising automobile cleaner and polish or finish is original and exclusive with us and will be protected by legal action against infringement and imitators the same as the name of the product itself.

ROBERTS PRODUCTS



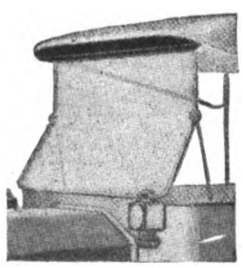
Are Big, Rapid Sellers Widely Advertised for You

SPLENDOLA is a body finish that never fades—"1000% better than the next best," as one jobber states it. Ready now for its biggest selling season. Get in your stock for our big spring drive.

The **Draft Shields for Fords** are big sellers, with liberal profits, and ROBERTS **Seat and Slip Covers** are a summer necessity for all cars. Also Ford rear curtain lights—made ready to apply instantly.

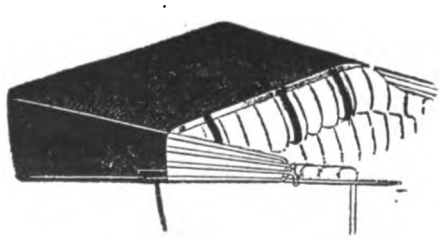
Write for complete details regarding the entire ROBERTS Line. All lively sellers that jobbers handle because **they pay.**

GARAGES: Give 100% satisfaction and make 100% more profit cleaning and shining cars the Splendola way. Write for our free folder, "Cleaning Cars for Profit." It will open your eyes to a big profit you are missing and how to secure it.



Draft Shields for Fords

Write for Free Illustrated Literature and Discounts



Seat and Slip Covers for All Cars

C. F. Roberts Company, Inc.

Detroit Michigan



An old Paige, cleaned and polished with SPLENDOLA, and equipped with Roberts Top and winter curtains.

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Know This Trade Mark



For Bigger Business This Year

The Motor Car Supply Company of Chicago has been established 15 years. From the first it has been the dealers' warehouse, playing a big part in business growth that pays.

Are you one of the dealers who have profited by the service of our organization?

Have you our General Catalog?

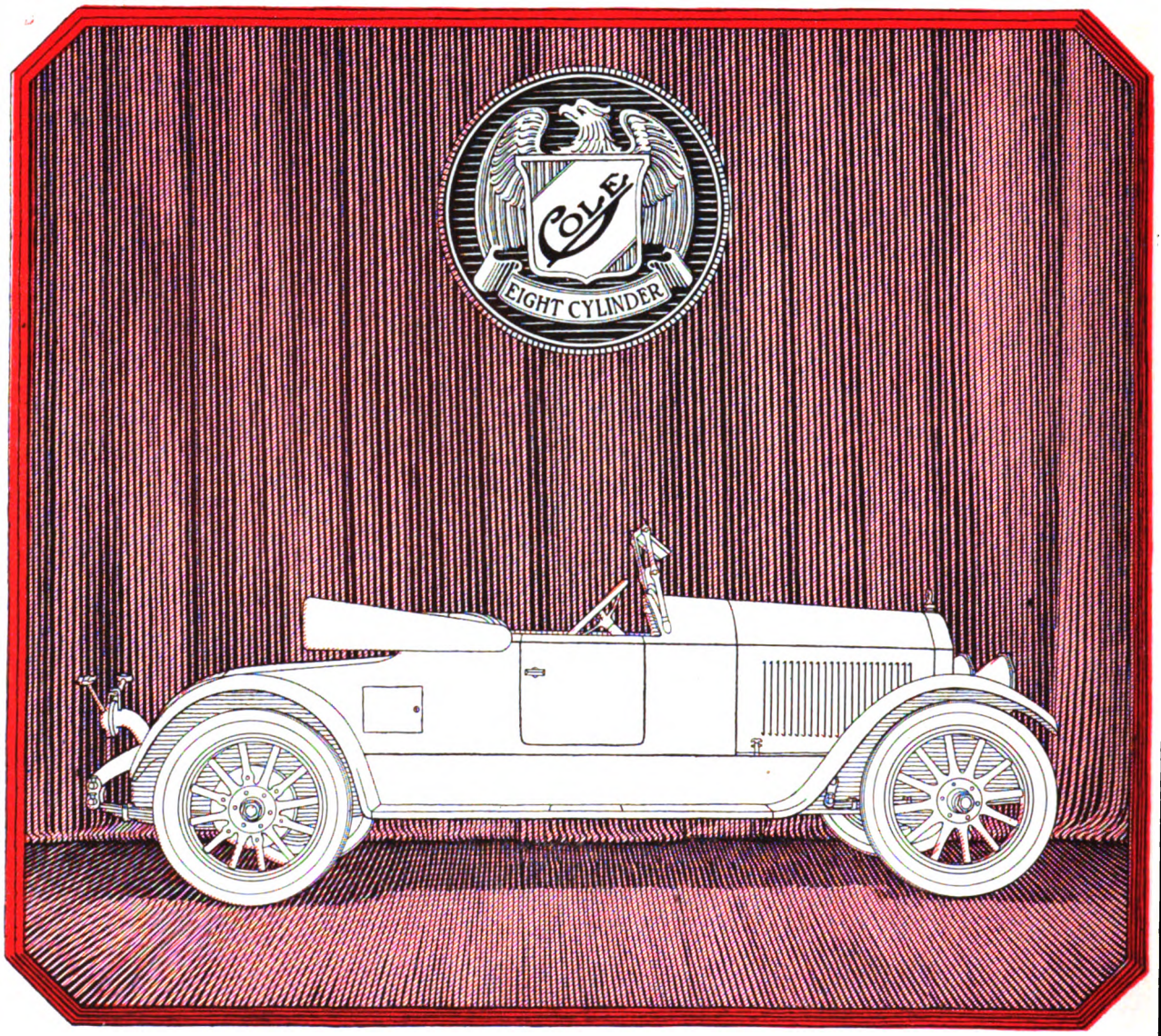
Do you get our Monthly Bulletin?

If not, you should, for bigger business. At your request we will gladly put you on our mailing list.

Write for this free service, today.

MOTOR CAR SUPPLY COMPANY
1451-53-55 MICHIGAN AVENUE, CHICAGO, ILLINOIS

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COLE EIGHT ROADSTER—MODEL 871

Three COLE EIGHT *Models that Create a New Vogue*

Keen followers of the most advanced ideas in automotive design are enthusiastic in their endorsement of the seven-passenger Tourster, four-passenger Sportster and two-passenger Roadster which have just been added to complete the Cole Eight line.

Their lithe, dashing lines are due to the new Aerotype Bodies, with high cowls and low, gracefully beveled sides—the latest and greatest creations of Cole craftsmanship.

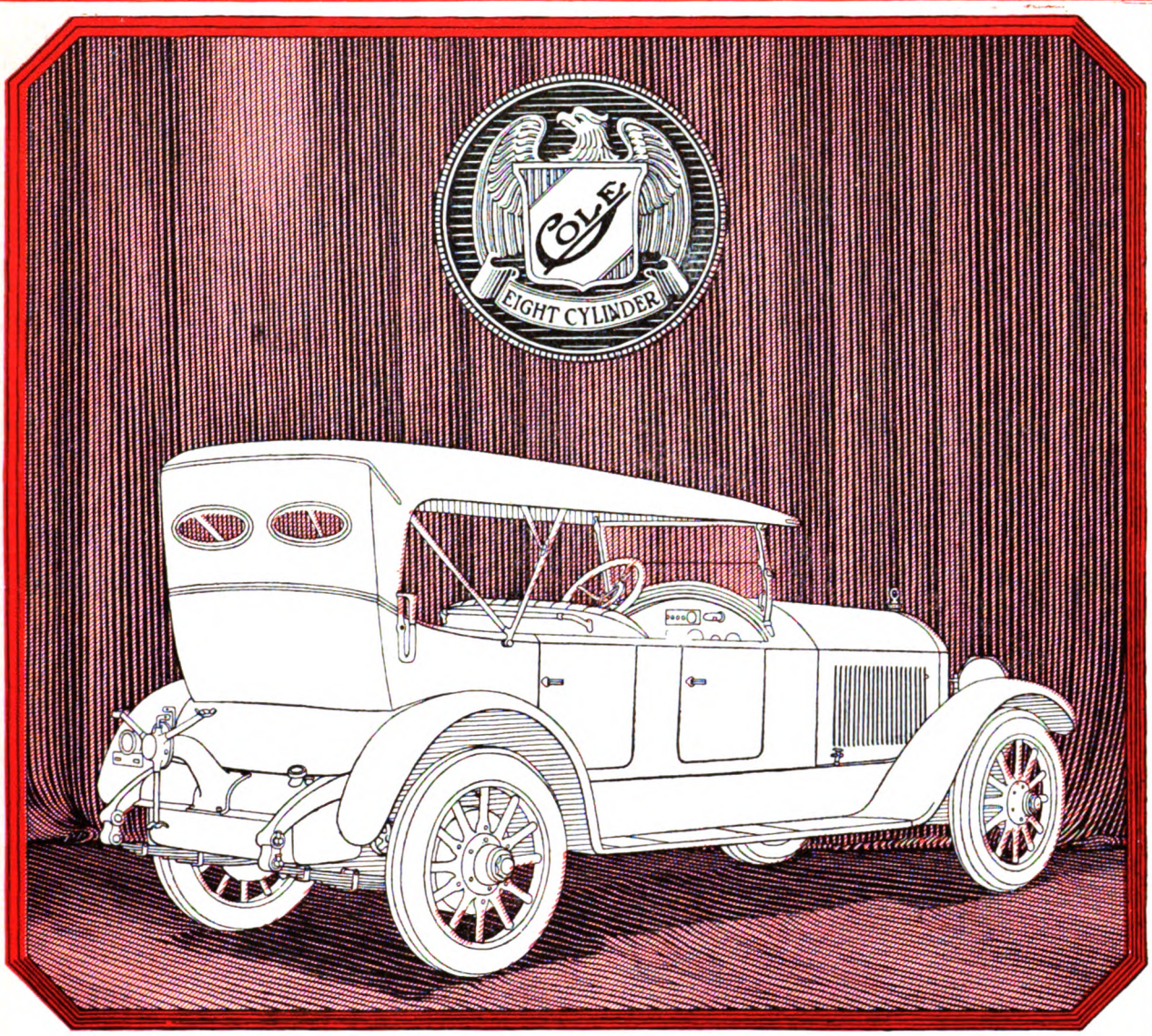


Model 860 Touring Car—$1995; Model 861 Tuxedo—$1995; Model 863 Tourcoupé—$2495; Model 864 Four-Door Toursedan with divided or solid front seat—$2595; Model 865 Four-Door Toursedan with solid front seat, removable partition, and dictagraph—$2695; Model 866 Four-Door Toursedan with partition, dictagraph and seats for six in tonneau—$2795; Model 870 Tourster—$2395; Model 871 Roadster—$2395; Model 872 Sportster—$2395

All prices f. o. b. factory and subject to change without notice



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COLE EIGHT SPORTSTER—MODEL 872

Meet Every Desire for Greater Utility and Exceptional Beauty

No matter how widely diversified motor car wants are, the Cole line has a car to meet them.

By adding three new innovations to the present comprehensive line this company now offers a choice of models covering a wide latitude.

Those who appreciate the extraordinary in motor cars will find, in the Cole's augmented assemblage of more useful and more beautiful designs, the fulfillment of their own ideals.



Tried and true in rugged sturdiness and perfect performance, the standard Cole Eight chassis, entering its fourth consecutive year of tested superiority, will be used on the seven-passenger Tourster, four-passenger Sportster and two-passenger Roadster in addition to all other models.



COLE MOTOR CAR COMPANY

Indianapolis, U. S. A.

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RAYFIELD CARBURETOR

Backing Up Your Belief

RAYFIELD dealers believe, first of all, in the superior merit of the Rayfield Carburetor. They know what it will do.

They know it will give from 20% to 50% more miles per gallon of gasoline and better all-'round performance.

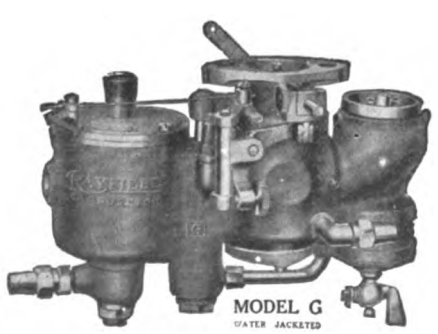
They know they can make that guarantee to the car-owner just as strong as words can say it. *Because the Rayfield does make good.*

Should it not do what is claimed for it—due to some defect which the manufacturer is anxious to know about and correct—then the customer's money is cheerfully refunded.

That's how the manufacturer backs up the dealer's belief. Dealers are sure to be successful with a satisfaction-guarantee such as the Rayfield has behind it.

It will pay you to write for our sales proposition to dealers.

Findeisen & Kropf Mfg. Co.
2101 Rockwell St., Chicago





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FOR HEAVY DUTY



FIRING SURFACE

In the most strenuous and exacting service on passenger cars, trucks, tractors and marine motors,

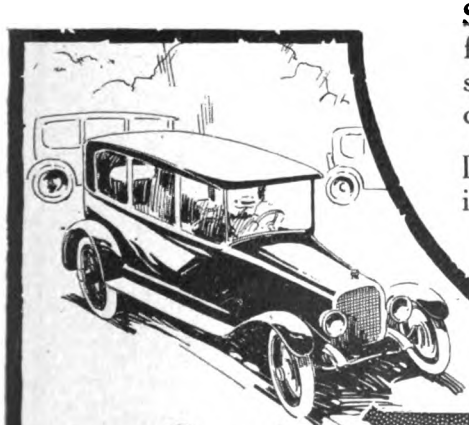
NATIONAL SPARK PLUGS

have demonstrated their right to be known as the best all round spark plug in America.

They have a larger sparking surface than any other plug made.

The ideal winter plug for easy starting.

Price, $1 each at all good dealers.



Sold on 30 days' trial. Guaranteed for one year. If your dealer cannot supply you, send us his name and order direct.

Dealers: Send for the most interesting proposition in the spark plug field.

$1.00

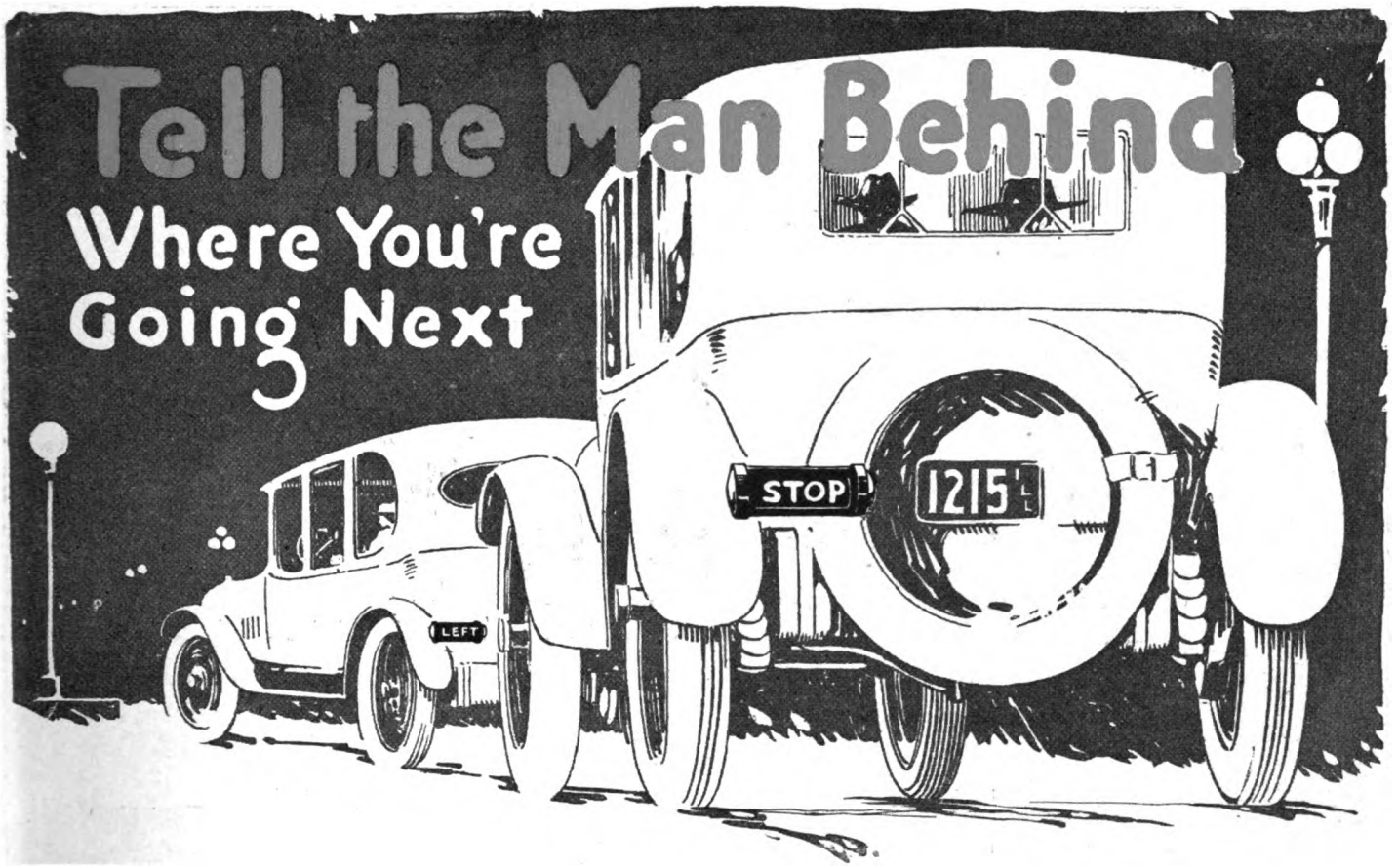


Bergie NATIONAL SPARK PLUG Company
Rockford, Illinois

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Roedding Signal and Electric Horn Control







Returns to Neutral Automatically After Signaling





Effective Day and Night

THE ROEDDING SIGNAL TAIL LIGHT

DEALERS

This certainly is the fastest selling high grade accessory offered you for the past four years. Better sign and mail this Coupon NOW

LIBERAL EXCLUSIVE TERRITORIAL RIGHTS

The Roedding Signal Tail Light operates by a finger touch on the control-plate button, fastened on steering wheel or door. Signals Stop, Back, Right, Left. Push the button, and the horn sounds. Big, plain two-inch letters, illuminated at night. Returns automatically to neutral, showing a clear, red light. Runs by storage battery or dry cell, with negligible current draw.

Dealers who respond quickly may acquire exclusive territory—write or wire today. A few exceptional positions are offered **men of proven sales ability** who will travel and establish dealers and agencies.

Price Complete, $18.00

K. G. BARKOOT, Sole Distributor
1010-1012 Chamber of Commerce
Detroit, Mich.

K. G. Barkoot,
1010 Chamber of Commerce, Detroit

I am interested in selling the Roedding Signal.

Name.....

Address.....

.....

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Start Your Motor Instantly In Cold Weather

DEPENDABLE assurance of quick, easy starting, even on the coldest day of winter. That is what every motorist gains by equipping his car with an Imperial Primer—**a necessity, not an accessory.** Starting troubles will be forever ended.

Thousands of satisfied users in all sections of the country would not be without one all the year around. The Imperial Primer is a guaranteed money and trouble saver for motorists; a *profit-maker for every live dealer.*

For lack of this substantially-made motoring necessity, hundreds of fine cars are stored away for the winter, because owners refuse to endure the vexations and delays that go with starting a cold engine. They know, too, that it is increasingly difficult to renew "life" with gasoline of today's uncertain quality.

Cold weather lowers the efficiency of even the best batteries. The quick starting, effected by the Imperial Primer, prevents the usual winter-time drain on batteries and self starters. This feature alone is worth many times the price asked—$6 for the outfit complete.

Imperial Primer

Makes Cold-Weather Starting Easy

This invaluable outfit consists of a small, substantially-made plunger pump, auxiliary tank for high test gasoline, bolts, connections and tubing *for any make of car.* In operation, one upstroke of Pump (K) draws in a small charge of gasoline from the auxiliary tank (P) and one downstroke shoots the charge, vaporized, into the manifold at (M) and (R).

All couplings are made by means of the well-known Imperial Compression Couplings, no soldering, flaring or threading being required. Simply drill and tap into the manifold for ⅛-in. iron pipe thread.

DEALERS: Here is an ideal and profitable winter seller. Every car owner and chauffeur needs an Imperial Primer right now. Write for details. Or better still, visit our booth at the Chicago Show and become familiar with this wonderful device that has revolutionized automobile starting.

THE IMPERIAL BRASS MANUFACTURING COMPANY

1221 W. Harrison St., Chicago, Ill.

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Get 800% Profit Out of the Box

Every Car Owner Wants Auto Monograms. Apply Them Yourself or Sell Them in Sets. This Display Box Is Your Salesman.

Handsome black case with hinged cover. Placard in full colors and gold. Full directions. Everything complete, ready to start at once.



DEALERS GARAGE MEN REPAIR MEN

Transfer Auto Monograms in 15 minutes to any car—your cost 15c.—your charge $1.50—your profit $1.35. Four cars easily initialed in an hour. No experience necessary—spare time or all time. Better than hand lettering costing $5.00. Dry in a few minutes.

Or simply sell the set of six letters—three for each door of the car. Charge 50c., 75c. or $1.00. Let the car owner put them on himself. Give him a bottle of cement, a camel's hair brush and full instructions with each set. Simply place the case (illustrated) where car owners can see it. They will be attracted by the newness of the idea and the beauty of the letters. The letters will sell themselves. Great possibilities. Enormous profits. Wonderful opportunity. As easy for you or the customer to apply as a postage stamp.

Some choice, exclusive territory now open for live agents, who can appoint sub-agents and make a profit on the sales of the sub-agents as well as his own.

Cut off the coupon at bottom of page now, and mail today for free samples and this great money-making proposition. We help you sell Auto Monograms with free literature, show cards, etc.

Auto Monogram Supply Co.
626 Niagara Building, NEWARK, N. J.

CUT COUPON HERE

AUTO MONOGRAM SUPPLY CO.,
626 Niagara Bldg., Newark, N. J.

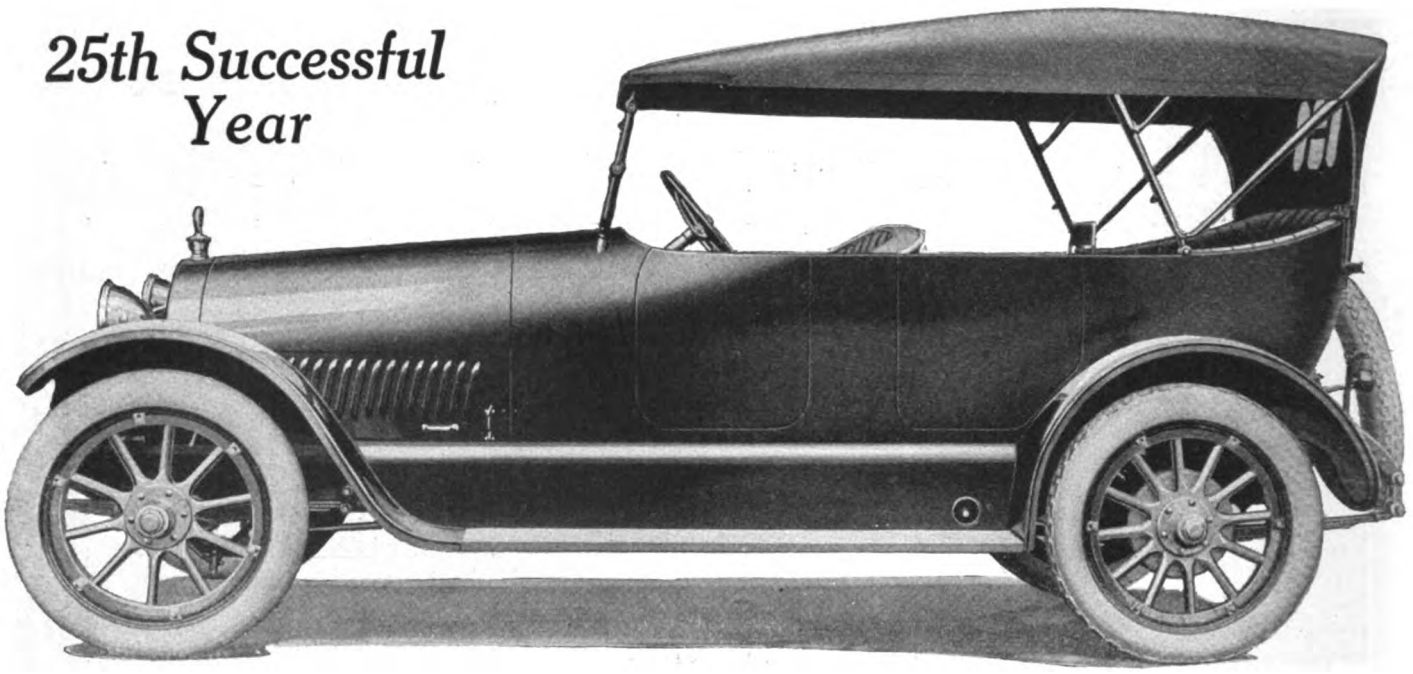
Gentlemen: Without obligation upon my part, please send me, by return mail, free samples of letters and full information of dealer proposition.

Name ..... Address .....

City ..... State .....

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25th Successful Year



The New Haynes Open Car for Seven

LONG, low-swung and straight-lined, with high-arched, broad-chested hood, rakishly tilted weather-tight windshield, double cowl and wheel-form fenders, this new Haynes offering in a seven-passenger open car is proving a strong contender for the title of the season's favorite.

Front springs measure 39x2¼ inches. Rear springs are 58x2¼ inches. Their generous size and resiliency afford the extreme in riding comfort.

Six-inch frame side members preserve rigidity on uneven roads, avoiding squeaks, rattles, binding doors and sagging.

The finishes are beige brown, deep carmine and royal green. The upholstery is modishly fashioned in French pleats.

The center cowl panel is beautifully grained American walnut. Large auxiliary seats disappear within it. A parcel compartment and cowl light with switch are centered therein.

The motive power is the famous Haynes Light Six engine—that *mature* engine which has required no vital changes in three and a half years.

—The complete Haynes line includes eleven new settings for the Haynes "Light Six" and "Light Twelve" engines. National advertising is being extensively used. Live dealers have a live proposition awaiting their wires or letters. Address

THE HAYNES AUTOMOBILE COMPANY, 70 S. Main St., Kokomo, Ind., U. S. A.

See the Haynes Exhibit at the Chicago Show. Space A-1.

HAYNES

"America's First Car"

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The Repair Shop—Its Bright Outlook for 1918—The Rejuvenation of Old Cars

DURING the coming year, more than ever before, the wisest of wise motor-car owners will hie themselves with their cars off to the repair shop.

If they can't get that new car for the coming year, they will bring their old one up to the scratch. Perhaps this car will need painting, possibly a change of decoration, and so on, upholstery, metal finishings, or a new top. This top, by the way, is the biggest aid in bringing about the car's final rejuvenation. Take any car—from the costly ones down the line—and subject it to the ordinary wear and tear, then notice its appearance. Generally the top has had just a trifle more abuse than the rest of the car, and then if this old top is whipped off and a new one substituted you will notice that you have made the broadest jump, from the old to the new.

If a new top is not needed, there will be scores of car owners who will perhaps have damaged a top in part. This section will stand out as an eyesore to them, and if they are wise they will give it immediate attention, before it begins to spread out.

This work of replacing old tops with new, or patching damaged tops, is the work which faces the industrious repair-shop owner on a bigger scale this year than ever before.

Suggesting the Proper Topping

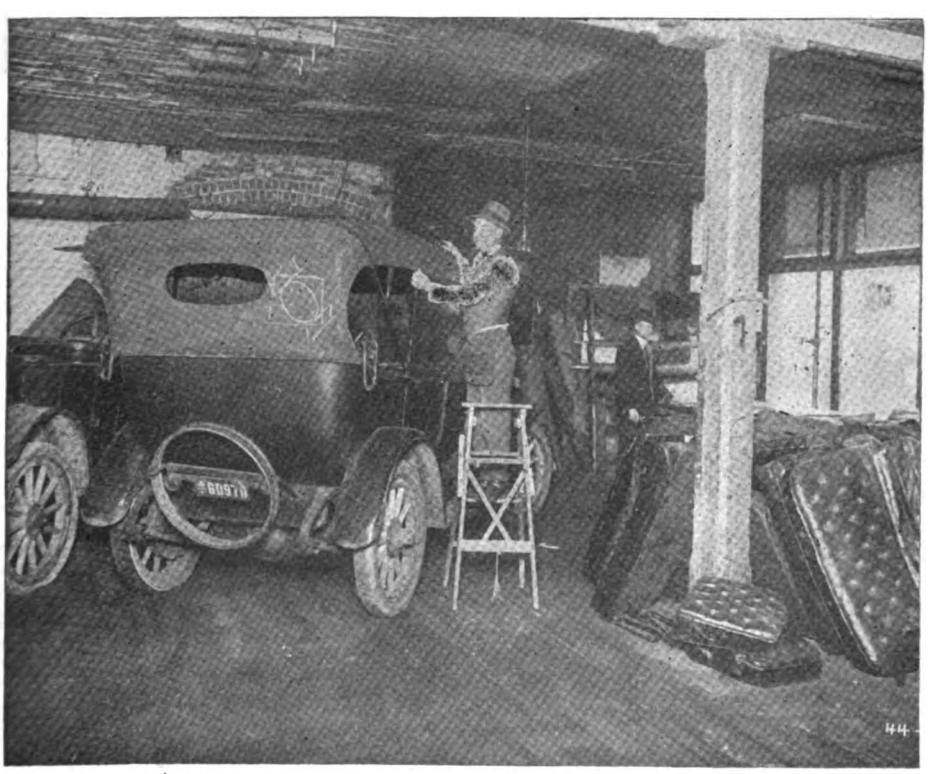
In regard to the proper topping material for this work, we call your special attention to the famous Chase Drednaut Motor Topping. This is a trademarked fabric, sold by the well-known house of L. C. Chase & Co., whose merits as manufacturers date back to 1847. This firm has a splendid reputation as producers of nothing but the best materials for the automobile trade, and Drednaut is especially adapted for your use.

Drednaut Motor Topping has been made by L. C. Chase & Co. for over a quarter of a century, and though it is not the cheapest kind of top material on the market to-day, its use will mean more in dollars and cents to you than any other topping material to be had. To the observer, Drednaut Motor Topping appears only as a single texture material, but in reality it is a three-layer fabric, all in one. The outside is a beautiful, weatherproof, non-cracking fabric, which is held to the inner cloth-finished fabric by the third middle layer of weatherproof and waterproof compound.

Drednaut Motor Topping is advertised as follows: "Defies Time and the Elements." This is quite true. The severest of weather tests have proven Drednaut Motor Topping to have these merits. It often outlasts the car itself; can be easily handled and cleansed, remaining like new over a long period of years.

A customer when considering top material will inquire as to whether the finish or appearance will last. In recommending Drednaut Motor Topping you can safely say that Drednaut will "stand up" indefinitely, adding to the car's beauty—smart and distinctive at all times.

It is commonly known throughout the trade that "more Chase material is used on vehicles to-day than any other brand," and if you can realize the importance of this statement you can better judge of the merits of Chase Drednaut Motor Topping. The biggest of America's car manufacturers use it, and it is certainly a material which no repairshop or garage should be without. Your trade will surely appreciate any repair work done with Drednaut, and you will probably supply them with a new top of Drednaut, for an extensive advertising campaign is placing its merits directly before the public daily.



Typical repairshop scene. Replacing a damaged top

The Importance of Upholstery

Another feature of repairshop work for the coming year will be that of reupholstering old cars. The discriminating owners of cars quickly see that new upholstery in their cars will add more to its betterment than anything else. The United States Government have specified in its work the use of upholstery fabrics other than genuine hide, calling attention to the fact that genuine leather should be conserved for more worthy purposes. The United States Government have bought extensively of Chase Leatherwove, the individual upholstery fabric which we bring to your attention as an excellent one for repair work or reupholstering done in your shops. Leatherwove meets every exacting requirement. The surface is beautiful and smart-appearing, will not crack or rot, and can be easily cleansed with soap and water—various grains and shades. L. C. Chase & Co., Boston, will gladly send a sample of each of their well-known products—Chase Drednaut Motor Topping and Chase Leatherwove—to all repairshops interested in this line of work. A comparison of these products with other similar ones will prove the case.

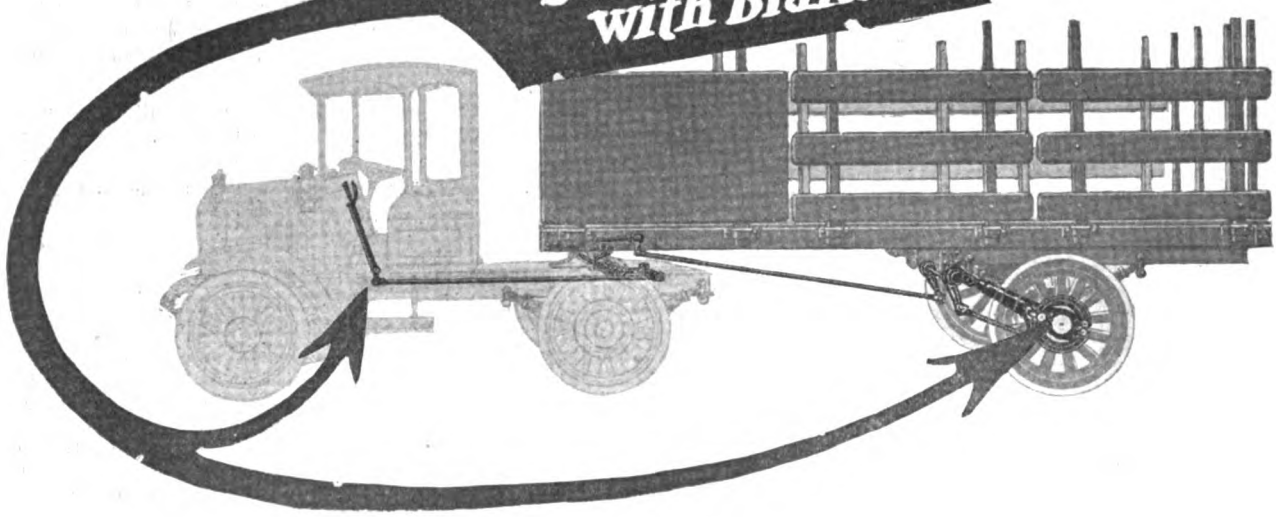
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Hooverize the Haulage Problem
Avoid Power Waste! Reduce Costs!

SEMI-TRAIL THE LOAD WITH SAFETY

On the TRITON —

the First Semi-Trailer with Brakes



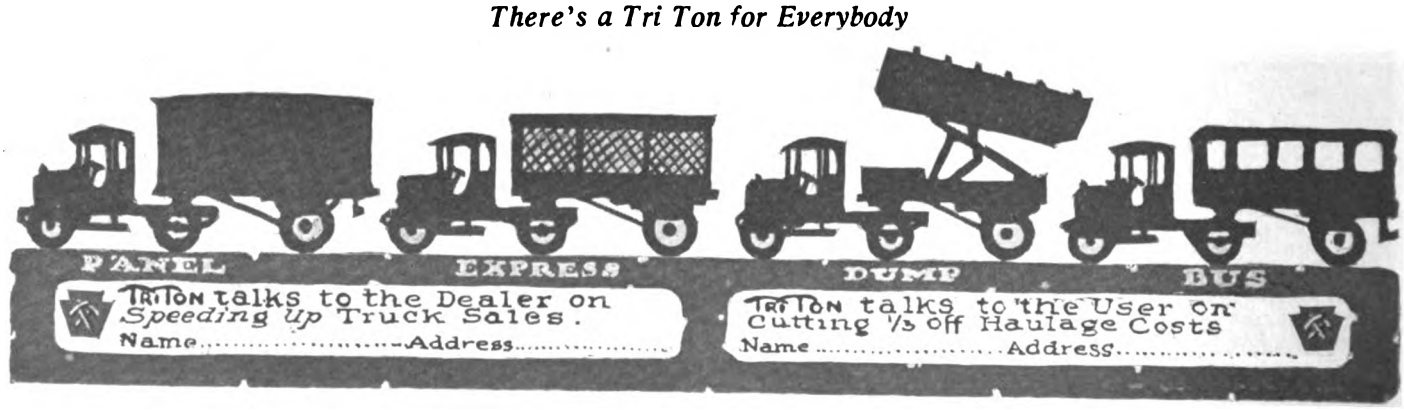
INCREASED CAPACITY at decreased costs to the user means INCREASED SALES AND PROFITS to the Motor Truck Dealer.

A 1-ton Truck successfully semi-trails a loaded 3 to 4 ton Tri Ton
A 2-ton Truck successfully semi-trails a loaded 6 to 7 ton Tri Ton
A 3-ton Truck successfully semi-trails a loaded 9 to 10 ton Tri Ton
A 5-ton Truck successfully semi-trails a loaded 15 to 17 ton Tri Ton

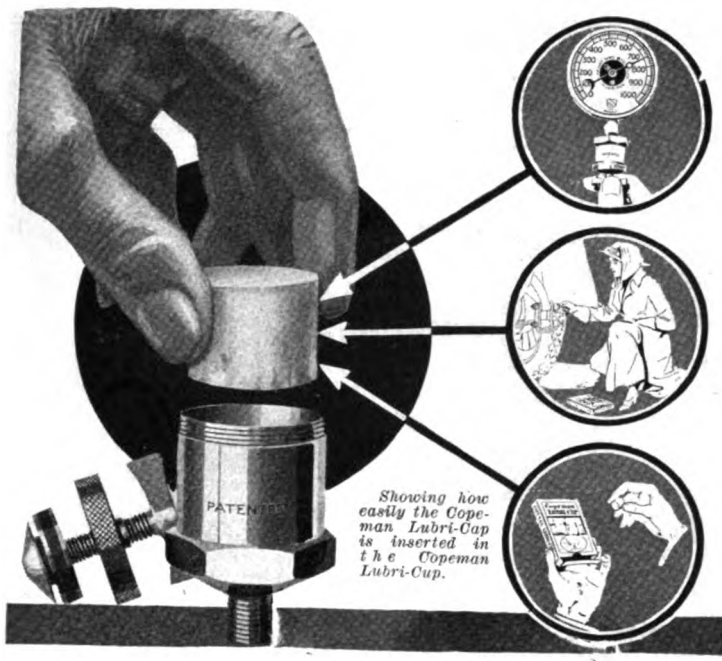
Hooverize and Tri-Tonize To-day

TRI TON CORPORATION
248 West 54th St. NEW YORK CITY

There's a Tri Ton for Everybody



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Showing how easily the Copeman Lubri-Cap is inserted in the Copeman Lubri-Cup.

745 Pounds Pressure to the Square Inch Puts Grease Into Any Bearing!

By actual laboratory test (see illustration) the Copeman Lubricating System develops a pressure of 745 pounds to the square inch—forcing the grease to the bearing no matter how much dirt or grit is clogging the channel. This kind of lubrication efficiency is possible only with the

COPEMAN LUBRI-CAP

Any Woman Can Now Grease Her Own Car!

With the patented Copeman Lubri-Cap which comes packed in handy boxes, any woman can easily attend to a bearing without the slightest inconvenience. This quick clean method of greasing an automobile is possible only with the

COPEMAN LUBRI-CAP

You Pay Only For Grease You Use!

Gone is the extravagance and waste of the dirty grease bucket—With the "Copeman" System you buy your grease in small convenient boxes and use every bit that you pay for. This modern lubrication economy is possible only with the

COPEMAN LUBRI-CAP

Announcing a Revolutionary Advance in the Lubrication of the Motor Car — the Copeman Lubricating System

"Keeps Your Car Young"

FOR THE FIRST TIME in the history of the automobile there is a sure and positive way to feed your bearings with grease!

Not a grease cup—not a grease gun—but a combination of both—a complete lubricating system which not only lubricates your bearings but *cleans them as well*—which puts the grease into your bearings no matter how much dirt or grit is clogging the channel—and *keeps your car young for years.*

Solves the Hardest Engineering Problem of the Motor Industry

Since the beginning of the industry, the most capable automobile engineers have been concerned with the problem of getting a lubricating system which would be satisfactory in the hands of the *average motorist*—and yet authorities estimate that *right now* 50% of all car noises are directly due to bearings worn loose on account of insufficient or no lubrication.

The trouble has not been with the grease—but that the grease never reaches the bearing—and now with the advent of the COPEMAN LUBRI-CAP the problem is solved.

You simply equip your car with the "Copeman" Lubri-Cups and thereafter instead of using the dirty grease bucket just insert the clean, easily handled "Copeman" Lubri-Caps as they are needed—and the positive *pressure* feed quickly eliminates your squeaky bearings for the simple reason that *they get the grease.*

At any time you happen to run out of Lubri-Caps you temporarily resort to bulk grease—since the Copeman Lubri-Cup is much more efficient than the common grease cups even with bulk grease.

NOTICE TO DEALERS

Special Introductory Offer INSURES YOUR PROFITS

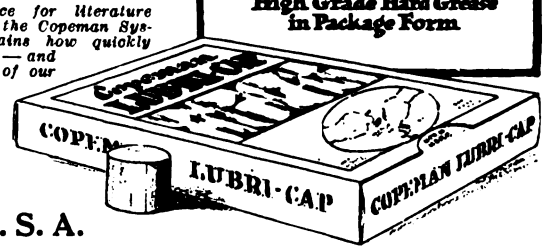
Although the Copeman system is soon to be available to the public as standard equipment on some of the leading pleasure cars, the big immediate money-making opportunity for you is in putting this system on the 3,541,738 machines already in use. We stand back of you with a special introductory offer which eliminates altogether the difficulties you usually experience in introducing a new accessory—which enables you to go right after this immense market with your profits absolutely assured.

Write at once for literature which describes the Copeman System fully—explains how quickly it is installed — and also for details of our SURE PROFIT plan for distributors.

What is the COPEMAN LUBRI-CAP?

The Copeman Lubri-Cap is a specially manufactured paper capsule with a tremendous tensile strength containing high grade hard grease—which when placed inside the Copeman Lubri-Cup forms an air-tight grease chamber. Then when you turn the thumb screw of the cup there is developed a pressure of 745 pounds to the square inch—sufficient to put the grease into any bearing no matter how badly the channel may be clogged up.

High Grade Hard Grease in Package Form



See the Copeman System at the Chicago Show

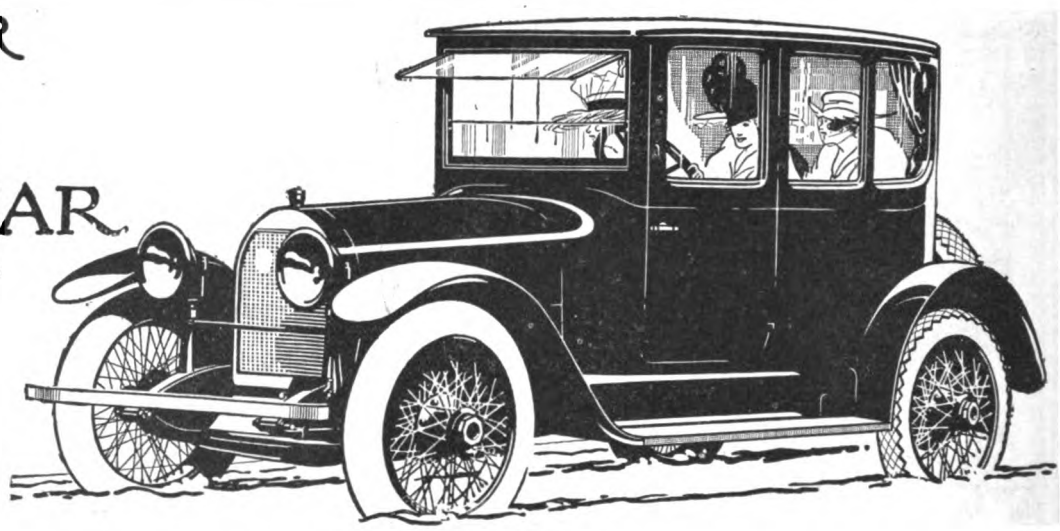
COPEMAN LABORATORIES, Inc., FLINT, MICH., U. S. A.

THE COPEMAN LUBRICATING SYSTEM IS STANDARD - FITS ANY CAR

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KISSELKAR
EVERY INCH A CAR

The ALL-YEAR Car



Now For The Chicago Show

AT the New York Show dealers found in the KisselKar their answer to the question: "What line for 1918?" You will find the same answer at the Chicago Show—don't miss ***them.***

They saw how KisselKar exclusiveness and individuality would minimize competition in their territory.

They learned the reasons for the supremacy of the ALL-YEAR Top—built **in,** not **on,** and entirely removable—insuring a profitable, all-year business.

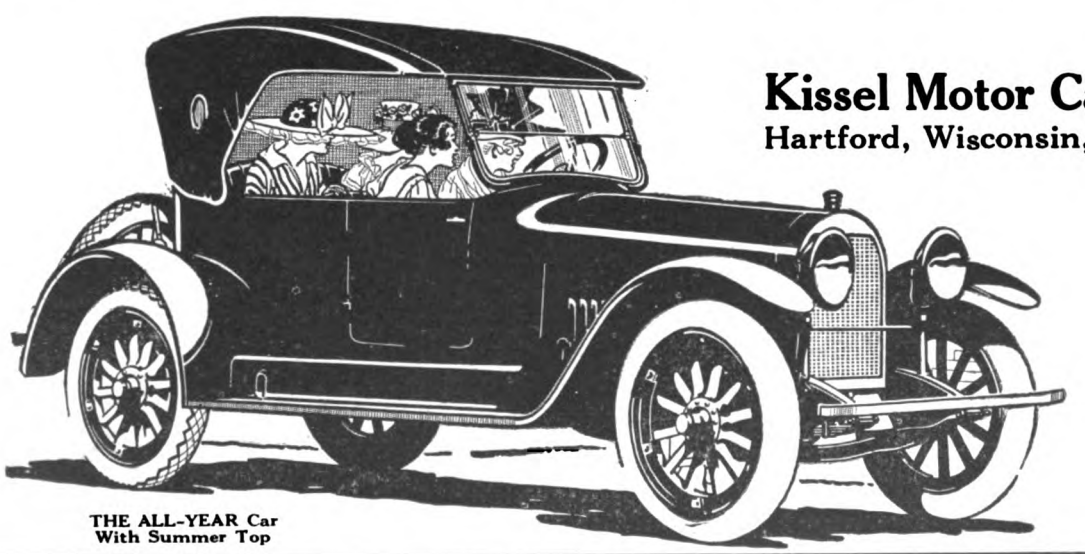
Exclusive Kissel Sales Features

The 4-passenger ***Sedané*** and the 5-passenger Staggered Door Sedan have the new ALL-YEAR Top, in which all windows may be lowered or the entire top removed.

The HUNDRED POINT SIX, with its Hundred Quality Features, easily maintains its leadership in its class.

The new **KisselKar Silver-Special Sixes,** to be shown for the first time in the West, established a new standard of custom-built exclusiveness and mechanical excellence at the New York Show.

Factory officials will be on hand to give you all information and agency details.

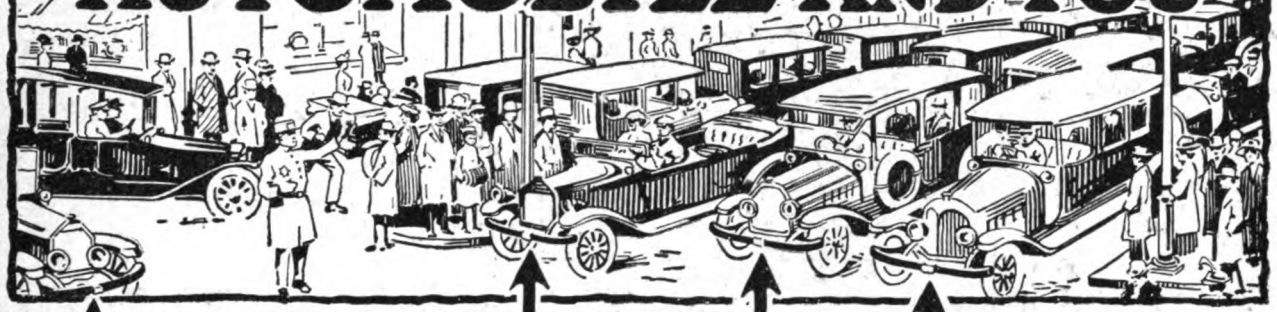


THE ALL-YEAR Car
With Summer Top

Kissel Motor Car Co.
Hartford, Wisconsin, U. S. A.

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PROTECTION FOR YOUR AUTOMOBILE AND YOU



Your car can have it—if you equip with a



Hartford BUMP ABSORBER

—more than a Bumper

A consideration of its construction will convince you of this.

Not only does it prevent the physical contact of colliding body with lamps, radiator and fenders, but it also effectually deadens the force of the blow accompanying the collision.

Three Models:

Large Car Type..$14.00
(three leaf)

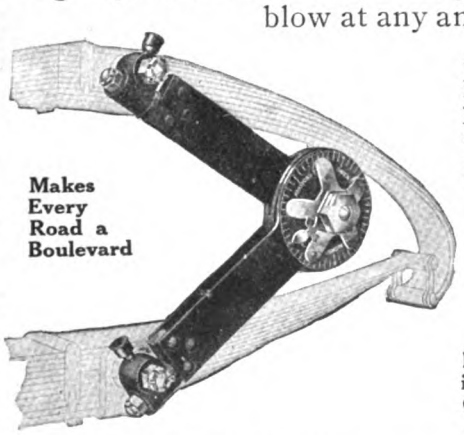
Medium Car Type 12.00
(two leaf)

Ford Car Type.. 9.50

Standard finish, black enamel with nickel center clamp. Nickel finish $1 additional

Brackets available for attachment to cars with splash pans without cutting pans or drilling frames.

Staunchly made of heavy spring steel, it presents a formidable front to the colliding object, and the double loop construction gives it the power to withstand a blow at any angle.



Makes Every Road a Boulevard

HARTFORD SHOCK ABSORBER

A motoring necessity, these skiddy, slippery days, because it renders absolute protection from the ordinary collisions—and most of the extraordinary ones.

Bolts on without drilling, and **stays bolted.**

EDWARD V. HARTFORD, Inc.
Heretofore known as Hartford Suspension Co.
142 Morgan Street, Jersey City, N. J.

Makers of the Hartford Shock Absorber, Hartford Auto Jack, Hartford Bump Absorber

Branches: New York, 1846 Broadway, and Service Station, 1926 Broadway; Boston, 319-325 Columbus Ave.; Chicago, 1716 Michigan Ave.

Distributors in principal cities. Dealers everywhere.

The Easy Lifter



HARTFORD AUTO JACK

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PROTECTION *for* FORDS



Fits All Ford Cars of Any Year and Any Model

EVERY time you leave your Ford car unprotected on the street, you encourage theft. An unprotected Ford is the easiest of all cars to steal—and the most difficult to recover.

Why not safeguard *your* car against loss as you do your other valuables?

Put it under lock and key—QUICK. *Tomorrow may be too late.*

The new type Goodrich Ignition Lock stops the thief.

Thanks to the many exclusive and patented features of this lock, there is no possible way the thief can beat it.

It can't be removed, picked, or budged. It can't be broken off or pried off. No key but yours will unlock it.

A concealed "ground" connection inside the switch lock housing makes it completely impossible for the thief to re-wire the coils back of the dash to start the engine—an easy thing to do with other ignition locks that do not have this vital feature. Easy to install by anyone in five minutes' time. No alterations to make. For sale by all good dealers and jobbers everywhere, or write direct.

Goodrich LOCK SWITCH

with YALE Lock

Goodrich-Lenhart Mfg. Co.
418 Widener Bldg. PHILADELPHIA

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D-E WORM-DRIVE MOTOR TRUCKS

Model J	Model A	Model B	Model C	Model D
Chassis Carrying Capacity, including Weight of Body,	Chassis Carrying Capacity, including Weight of Body,	Chassis Carrying Capacity, including Weight of Body,	Chassis Carrying Capacity, including Weight of Body,	Chassis for Dump Loads, Carrying Capacity, including Weight of Body,
2,250 lbs.	**3,500 lbs.**	**4,500 lbs.**	**7,000 lbs.**	**5,500 lbs.**
$950	**$1495**	**$1755**	**$2365**	**$1835**

Our Headquarters in Chicago during Show Week will be at the CONGRESS ANNEX. Our complete line will be on exhibition in the Windy City and can be seen by appointment.

A Sweeping Success from Coast to Coast. Positively the Greatest Values in Worm-Drive Trucks at their Prices in the Country—Bar None.

If you are at all in a position to handle a line of motor trucks you could not wish for a more compelling proposition than the D-E line presents.

The significant fact that D-E trucks have **heavier frames, heavier axles, heavier wheels with more spokes, heavier worm-drive rear axles** and **more powerful motors** than any other worm-drive trucks selling at D-E prices should convince you that they are in a class by themselves—and they ARE.

And in taking on the D-E line you align yourself with one of the best-known, fastest-selling lines of worm-drive trucks in America. You will have secured for yourself the representation of a line that not only measures up to the finest worm-drive trucks selling at hundreds of dollars more than the D-E, but will also have corralled the most attractive proposition in the entire field of worm-drive trucks.

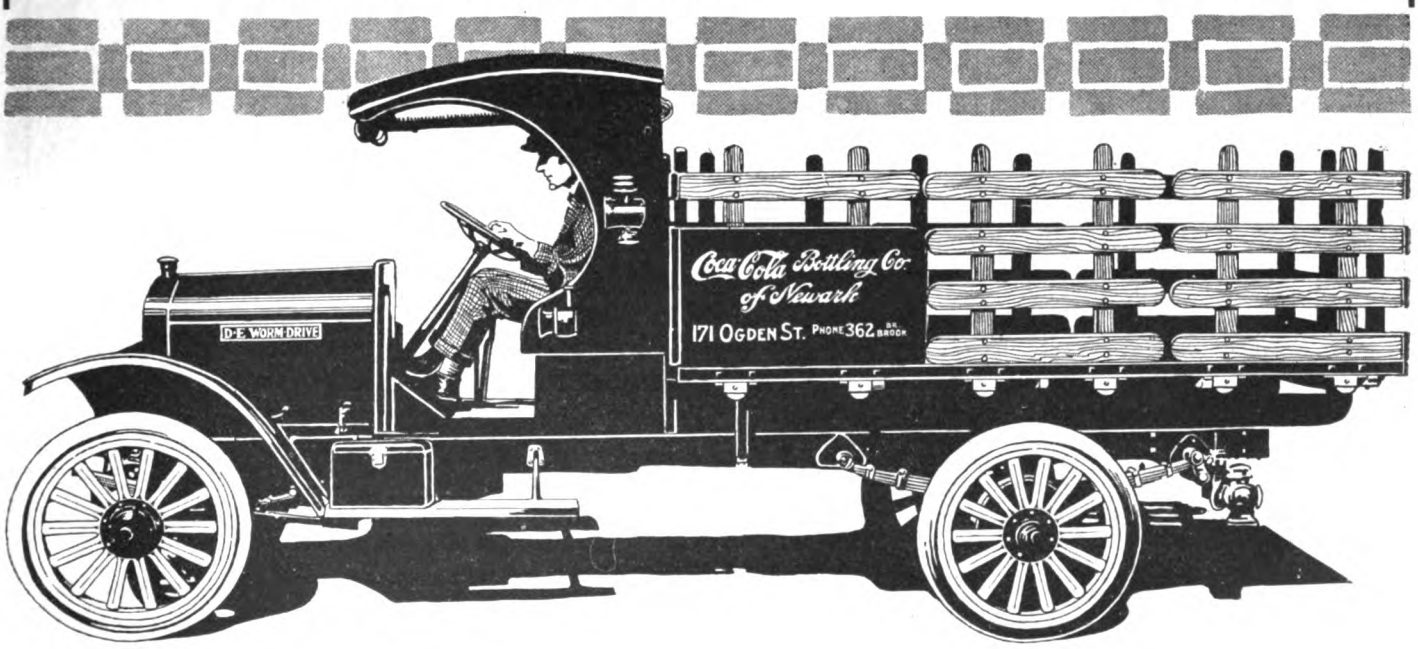
We are in a position to make a very limited number of additional dealer connections, but only up to the point which our 1918 production will permit. In this manner we shall be able to positively assure all of our dealers prompt deliveries at all times. Write or wire for details at once.

If you will be in Chicago during Show Week you can see the complete line of D-E trucks by appointment. Our headquarters for the week will be at the CONGRESS ANNEX.

DAY-ELDER MOTORS CORPORATION

P. K. HERTER, General Sales Manager

General Sales Offices: 1455 Broadway, New York City Factory, Newark, N. J.



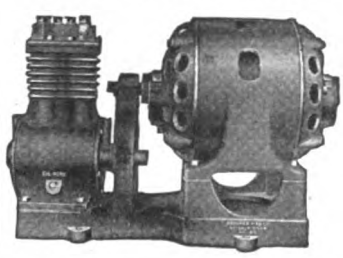
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THE BRUNNER GARAGE AIR COMPRESSOR EXHIBIT

AT THE CHICAGO SHOW WILL OCCUPY SPACES Nos. 203, 204, 205, 206, 207 and 208.

A competent force of engineers and sales representatives will be in attendance to explain our line to the visiting Jobbers, Garagemen and Motorists, and whether or not you are selling or using Brunner equipment our representatives will be glad to assist you in solving your compressed air problems. We extend you a cordial invitation to visit our Exhibit at the Chicago Show.



We also wish to thank our friends who displayed so much interest in our exhibit at the New York Show.

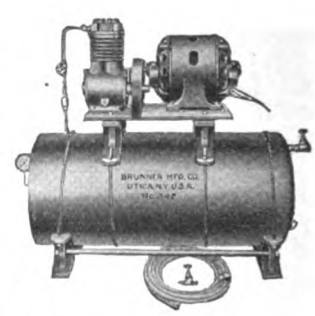
Proper tire inflation means more mileage and smoother riding—Brunner Service insures proper tire inflation.

WE USE A BRUNNER AIR COMPRESSOR
FREE AIR
FOR YOUR CONVENIENCE

The Brunner Sign is a sure sign of prompt and efficient compressed air service—are you Brunnerwise?

INVESTIGATE THE BRUNNER AIR COMPRESSOR

Every Jobber, Garageman and Motorist who is not Brunnerwise should investigate the Brunner Garage Air Compressor—he should give the compressed air problem more thought—he should know just as much about the air that goes into the tire as he does about the oil that goes into the motor—it is just as important.



Our new No. 15 Catalogue is ready for distribution—send for it today—and let us send you the name of the Brunner Jobber covering your town.



The Brunnerwise Garageman

BRUNNER MANUFACTURING COMPANY

Main Office and Plant:
UTICA, N. Y.

Cincinnati Branch:
Cincinnati, Ohio



The Brunnerwise Motorist

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The successful production and marketing of approximately

3,000,000 Bosch Magnetos

have furnished unequalled opportunity for perfection of design and skill in construction. The quality of materials has ever been the highest obtainable and production has been curtailed at times to make it possible to avoid departure from **BOSCH QUALITY.** This is still the standard by which all other ignition systems are judged.

This high grade product can be obtained in quantities to care for those manufacturers desiring to have the advantage of **BOSCH IGNITION.**

Car owners and prospective car owners should specify Bosch and insure themselves satisfaction.

CORRESPONDENCE INVITED

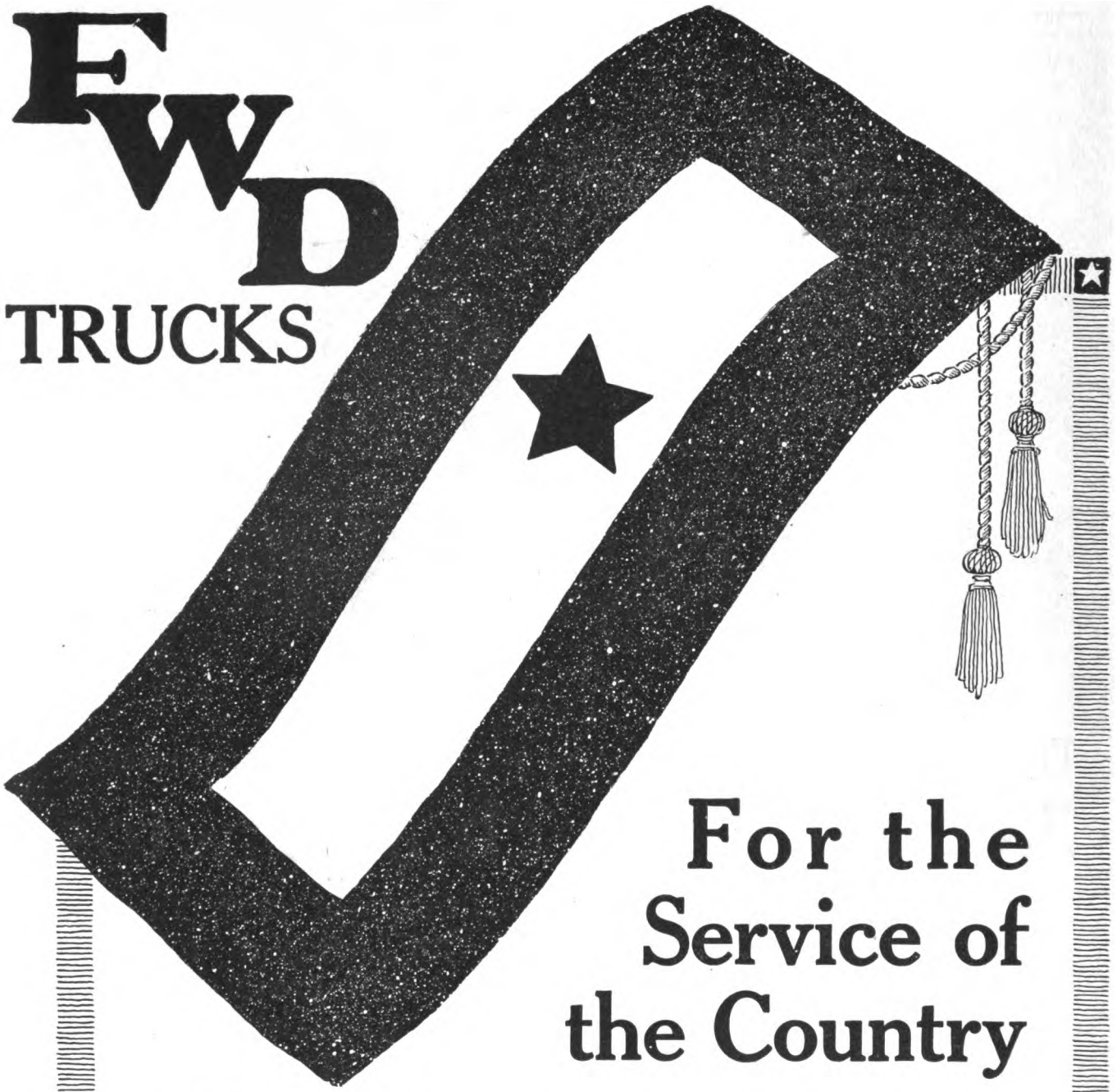
BOSCH MAGNETO COMPANY

New York **Detroit** **Chicago** **San Francisco**

Service Stations in Every State

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F W D TRUCKS



For the Service of the Country

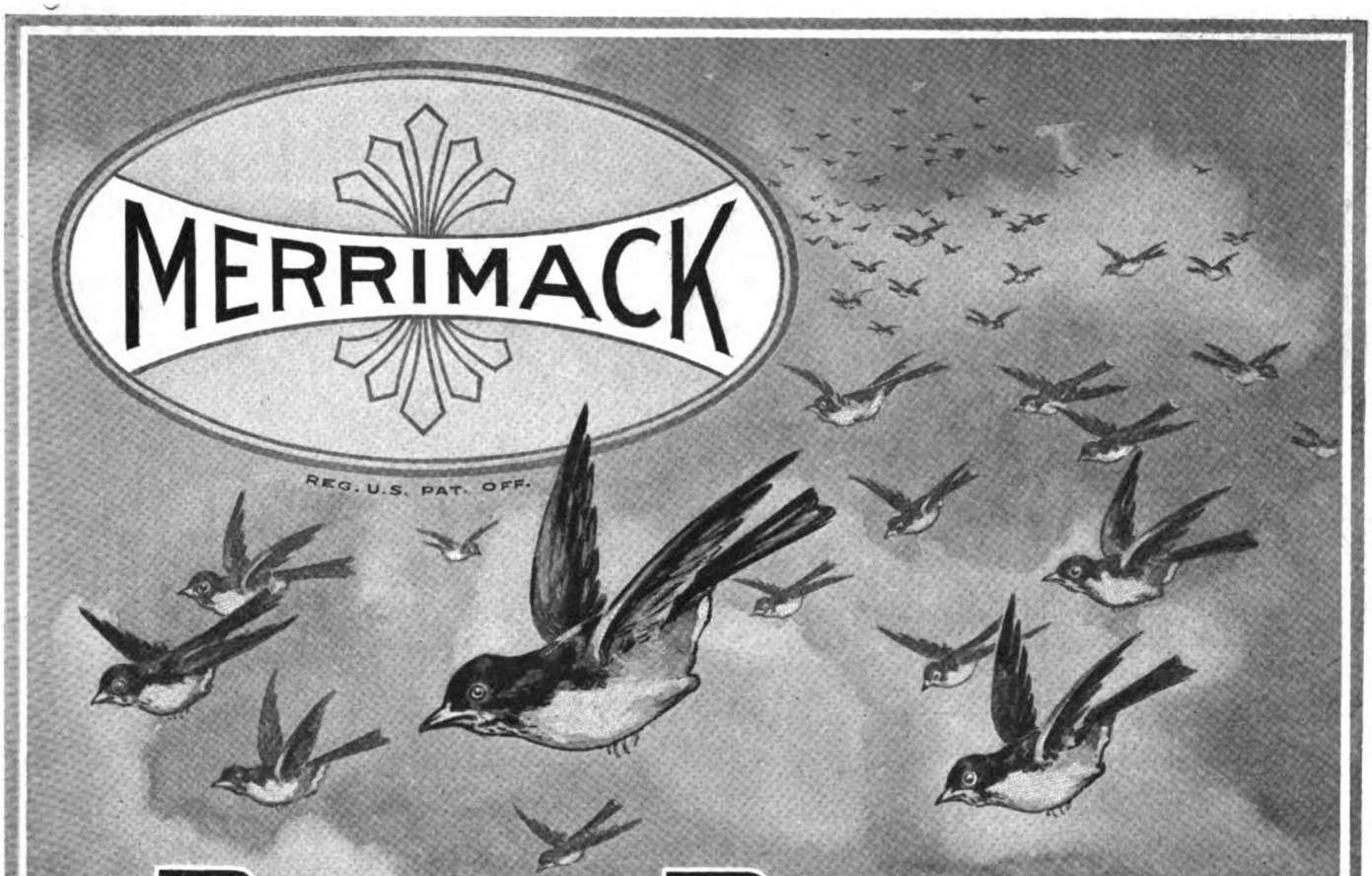
F-W-D Trucks have proved to be dependable, powerful and economical in the rigid requirements of war service. These features will add much to the efficiency of our industries at home. The principle of construction and its advantages are clearly described in the F-W-D Catalog.

Catalog Sent Free Upon Request

Four Wheel Drive Auto Company

Department P **Clintonville, Wis.**

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BLUE ROBIN FABRICS

These well-known leather substitutes were originated and their high quality is guaranteed by the Merrimack Mfg. Co., one of the oldest weavers and dyers of textile fabrics in the United States.

Blue Robin Fabrics are woven, dyed and coated in one plant and under one management; we are therefore able to supervise every process, and produce at a low manufacturing cost, a leather substitute which is unsurpassed for beauty, strength and durability.

Blue Robin Fabrics are winning first place among all the many leather substitutes because of their uniform reliability.

Out-of-door garments made from **Blue Robin Fabrics** are wonderfully soft, durable, absolutely wind and waterproof, and will not dry out and become hard even under very severe conditions.

Automobile manufacturers and consumers will find that **Blue Robin Fabrics** will give the best possible service at minimum cost, if they are used instead of leather, wherever it is desired to secure beauty, comfort and surprisingly long wear.

We make **Blue Robin Fabrics** on honor, sell them on their merits and are always pleased to submit samples and quote prices to interested customers.

MERRIMACK MANUFACTURING CO.

LOWELL, MASS., U. S. A.

LAWRENCE & CO., Selling Agents

89 Franklin Street, Boston, Mass. 24 Thomas Street, New York City

PHILADELPHIA CHICAGO ST. LOUIS SAN FRANCISCO LONDON, ENGLAND

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Touring, $1345
Roadster, $1360
f. o. b. Indianapolis.

Wheelbase—120 in.
Motor—Continental.
Tires—34 x 4.
Full Electrical Equipment.

The Best Value in the Automobile Market

Built of the best materials, purchased at pre-war prices.

The gratifying result of nine years of constant effort to produce the best by a group of expert engineers backed by a highly skilled and experienced manufacturing organization.

We earnestly believe that not only in elegant appearance and luxurious comfort, but in rugged durability and general mechanical excellence, the Empire offers far and away the best automobile value in the market today.

Empire Automobile Company

Indianapolis, Indiana

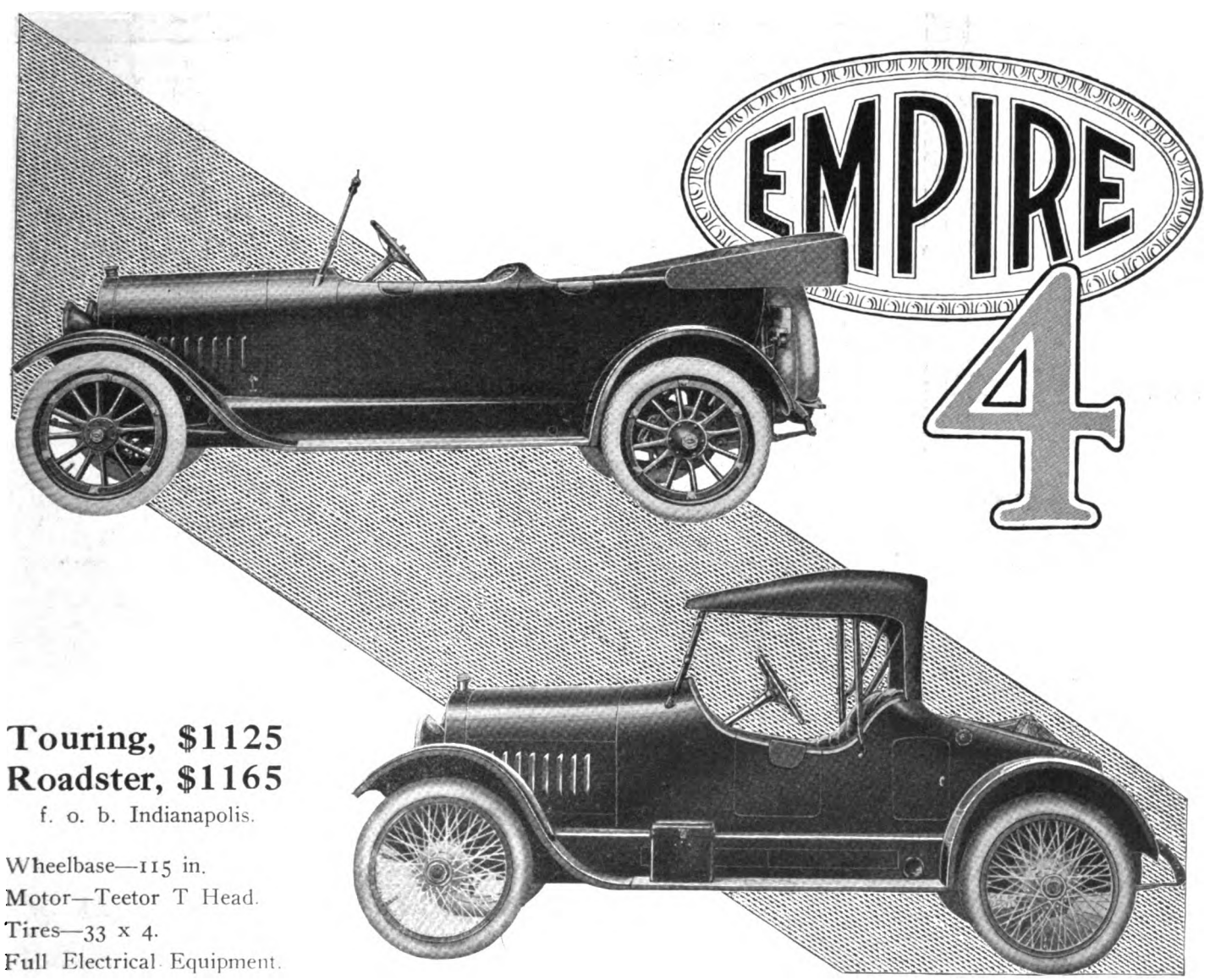
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Big Value That Will Build Big Business for You

No need to tell you, Mr. Dealer, of the big value in the 1918 Empire. You know it. The whole trade knows it.

With these big values we are giving you big advertising and doing other big things to help you put over your biggest year of business in 1918.

Better get on the wagon today. Write for the Empire proposition in your market or see us at the Chicago Show.



Touring, $1125
Roadster, $1165
f. o. b. Indianapolis.

Wheelbase—115 in.
Motor—Teetor T Head.
Tires—33 x 4.
Full Electrical Equipment.

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GREASE-in-TUBES



Also
CREW LEVICK
Motor Oils and Greases
from pure Pennsylvania Crude.

CREW LEVICK
Fractors
Make head-lights legal.

CREW LEVICK
Mistokleen
For polishing car bodies.

CREW LEVICK
Mistokloths
Handy cloths in boxes.

CREW LEVICK
Tire Seal
Stops punctures from stopping you.

CREW LEVICK
Victor Heater
For Ford Touring Cars.

And all classes and forms of Petroleum Oils and Lubricants.

The Economical Way

GREASE-IN-TUBES is the modern way of lubrication—it is economical—it provides fresh grease—it ensures clean grease—it does away with the inconvenient, wasteful "pail and paddle" method.

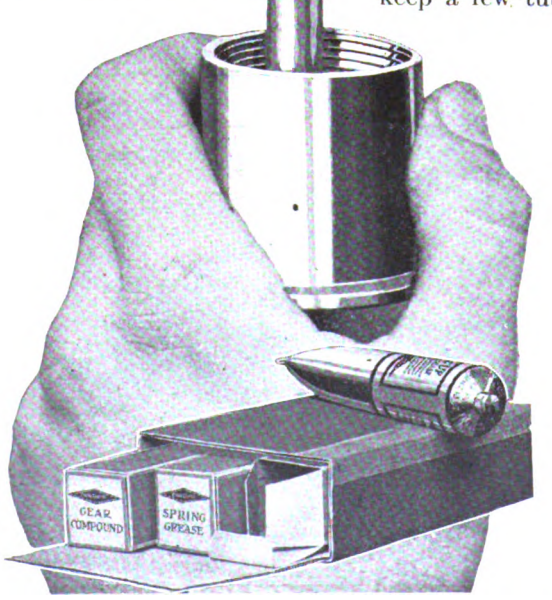
By the old way, half the grease is lost by drying up, and much is wasted by smearing it on with the finger or stick. By the "tube way" all the grease is used to the last particle. It always is fresh and smooth; it always is clean, and just the right amount of grease goes just where it is needed.

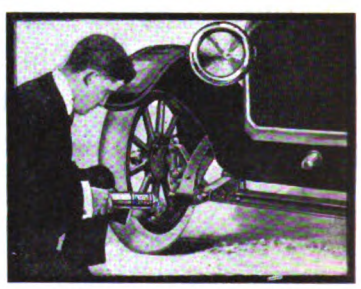
Mr. Modern Dealer, Crew Levick Grease-in-Tubes can be made as big a profit maker in your field as tooth paste in tubes has been in the field of dentifrice.

A continuous display of Grease-in-Tubes ought to bring good business. It lends itself to "reason why" selling. Put in a stock of Grease-in-Tubes now, keep a few tubes always on display in our special display rack, supplied free.

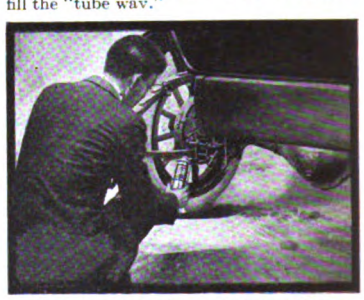
Order through your jobber now while the supply is liberal.

NOTE: Grease-in-Tubes is sold in handy kits of three big tubes each. The Lincoln Highway Kit—one tube each of cup, spring and gear grease—excellent to always carry in the car. Kits of three tubes, $1.00. Single tubes, 25 cents each.





USING CUP GREASE TUBE
It contains the finest quality of cup grease—always soft and clean. Cups are easy to fill the "tube way."



USING SPRING GREASE TUBE
It contains specially compounded grease for spring lubrication. Special nozzle comes with each tube, making it easy to get between the leaves.



USING GEAR COMPOUND TUBE
It contains an extra fine lubricant for gears. Don't wear water thin. A squeeze from the tube now and then will keep the case filled.

CREW LEVICK

Reg. U. S. Pat. Off.

CREW LEVICK COMPANY, 105 North Broad Street, Philadelphia, Pa.

One of the oldest and largest producers and refiners of oils and manufacturers of petroleum products

Branches: New York, Chicago, San Francisco, Baltimore, Boston. Foreign Offices: London, Eng.

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At the Chicago Show
Space A-3 Armory

MOLINE KNIGHT

TOURING SEDAN

Everything Desirable In a Year 'Round Car—

Plus All the Exclusive Advantages of the Knight-Motor.

In appearance, style and comfort we sincerely believe that the Moline-Knight Touring Sedan ranks easily with the finest and handsomest closed coaches, including those of much greater cost.

One cardinal advantage sets this Sedan apart—its Knight-type motor, a motor so smooth, silent and vibrationless that the source of power is almost forgotten. No valves to grind—carbon actually improves it—the spherical combustion chamber gives all the added efficiency claimed for valve-in-head motors without the noisy and troublesome valve mechanism.

This motor differentiates the Moline-Knight as the ideal Touring Sedan.

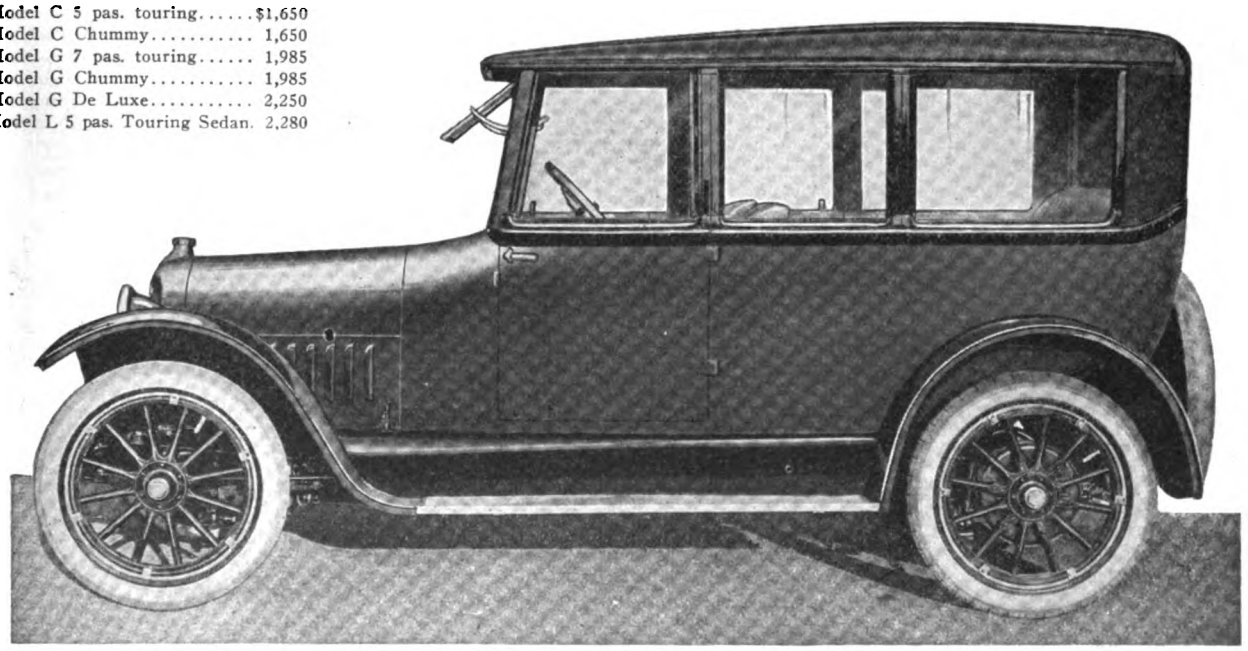
Send for catalog.

We have an unusually interesting proposition for a few additional distributors and dealers. See us at the Shows or write.

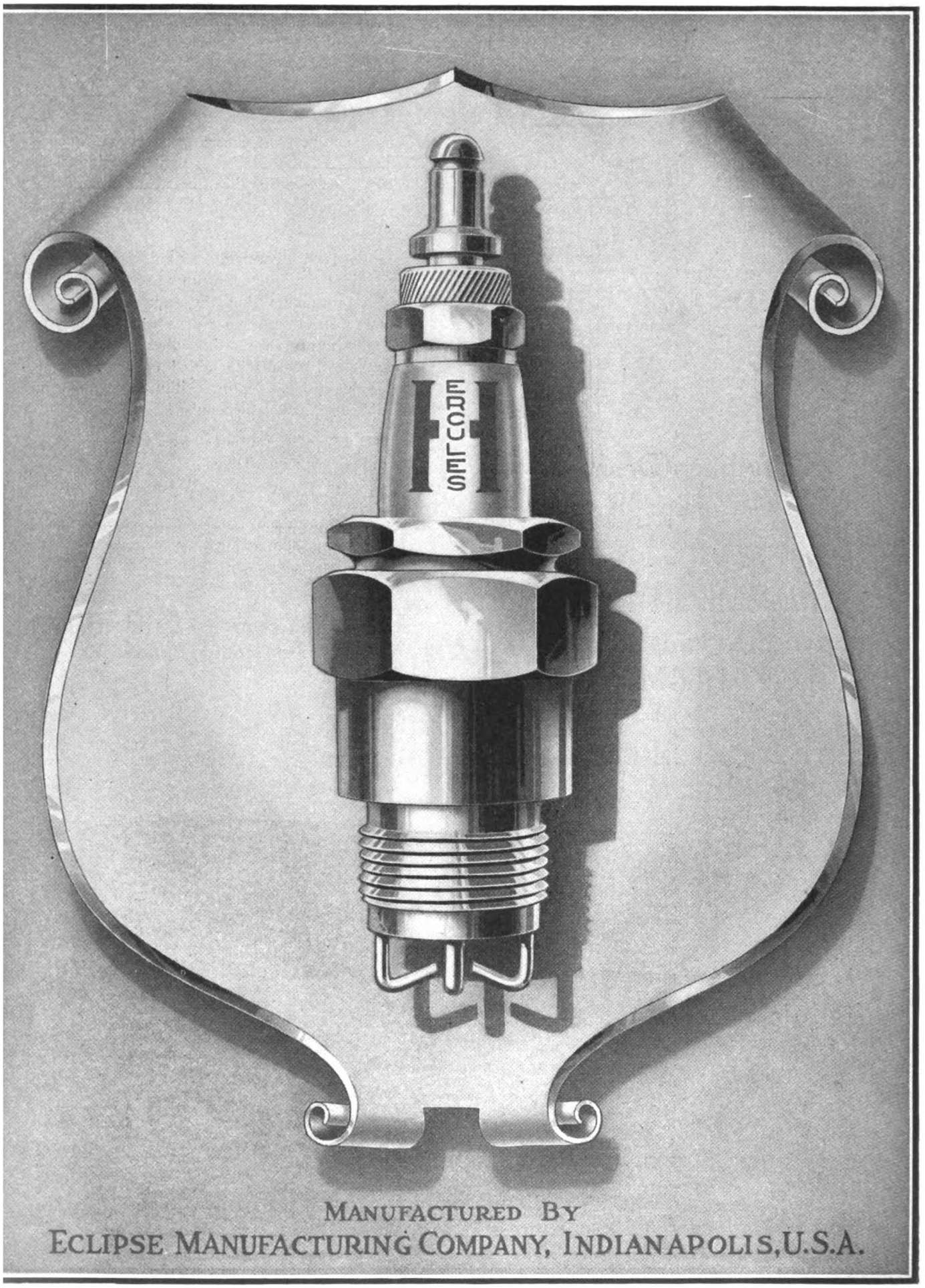
Root & Van Dervoort Engineering Co.
East Moline, Illinois

PRICES:

Model C 5 pas. touring	$1,650
Model C Chummy	1,650
Model G 7 pas. touring	1,985
Model G Chummy	1,985
Model G De Luxe	2,250
Model L 5 pas. Touring Sedan	2,280

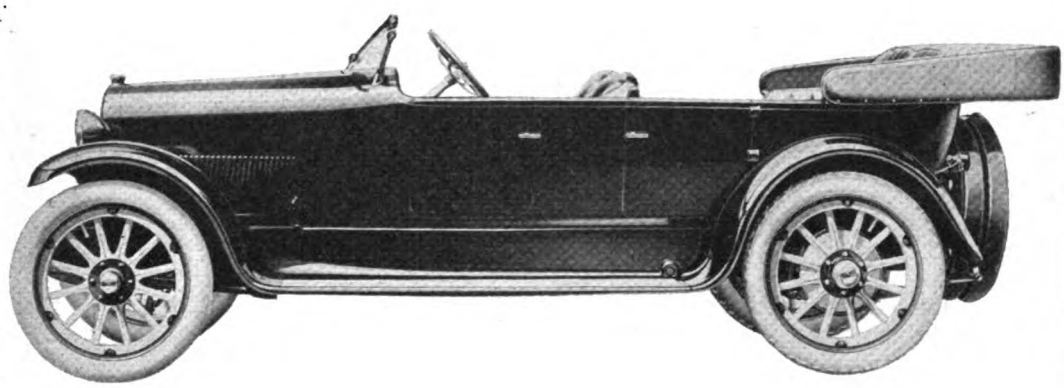


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CASE SIX



The Case Idea —and Yours

AT the New York Show there was widespread attention paid to the "All Feature" principle as exampled in the New Case Six. In this one car men found combined all the attractive features, and at a price lower than expected.

Mechanical excellencies are properly combined with beautiful design.

Here is complete pleasure and utility value, without untimely extravagances.

And as men go over the Case Six point by point they note the basic fundamentals of good car building, combined as never before. They realize that Case Engineers have created the finest Case Car ever offered.

Go over the specifications yourself. Note the tried and proven features. And when you examine the car, see how they are proportioned exactly, and how they are designed to make a harmonious and unified whole.

Every Case dealer knows that he offers in this New Case Six the finest car on the market for the money. Over-values are apparent. The customer is bound to be enthusiastic.

Family Model, a 7-Passenger Touring Car, color dark blue, $1875; Sport Model for four people, color periscope green $1875; All-Seasons Model, Springfield Type, for 7 or 5 people, color dark blue, $2375.

If you haven't come to know this car yet, and our profitable proposition, write immediately. An opportunity such as this is rare.

J. I. CASE T. M. CO., Inc., 215 Liberty St., Racine, Wis.

Founded 1842

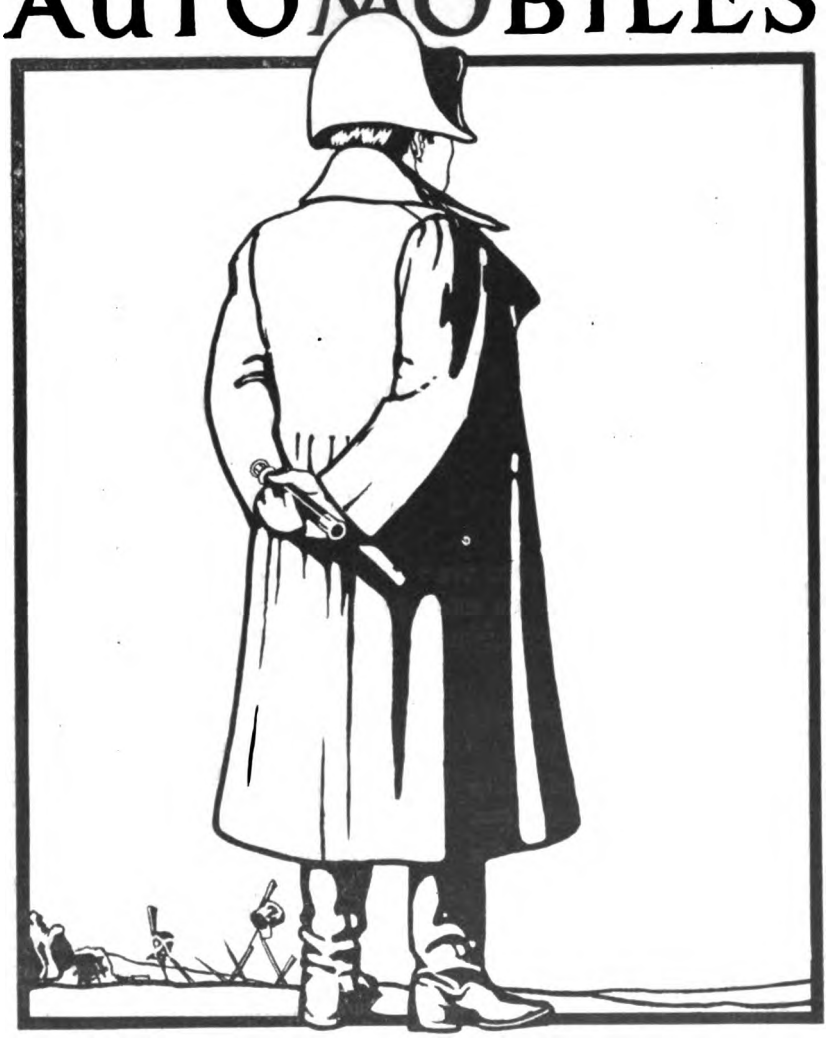
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SECOND YEAR
EQUAL TO ANY LAST YEAR
BETTER NOW

A STANDARD CAR IS A CAR COMPOSED OF ALL STANDARD PARTS AS PASSED BY THE SOCIETY OF AUTOMOTIVE ENGINEERS MADE BY RESPONSIBLE STANDARD PART MAKERS

3 MODELS FOR 1918 SEE THEM

NAPOLEON AUTOMOBILES



NOW LISTEN

AND PUT TOGETHER AND FINISHED BY EXPERTS SO THAT EVERY PART HARMONIZES AND BLENDS INTO ONE COMPLETE CREATION

* * *

NO FADS
NO FRILLS
NO SILLY SPECIAL PARTS THAT YOU CANNOT BUY FROM ANY OTHER MAKER BUT US

3 MODELS FOR 1918 SEE THEM

THE STANDARD CARS

Manufactured by

Traverse City Motor Car Co.

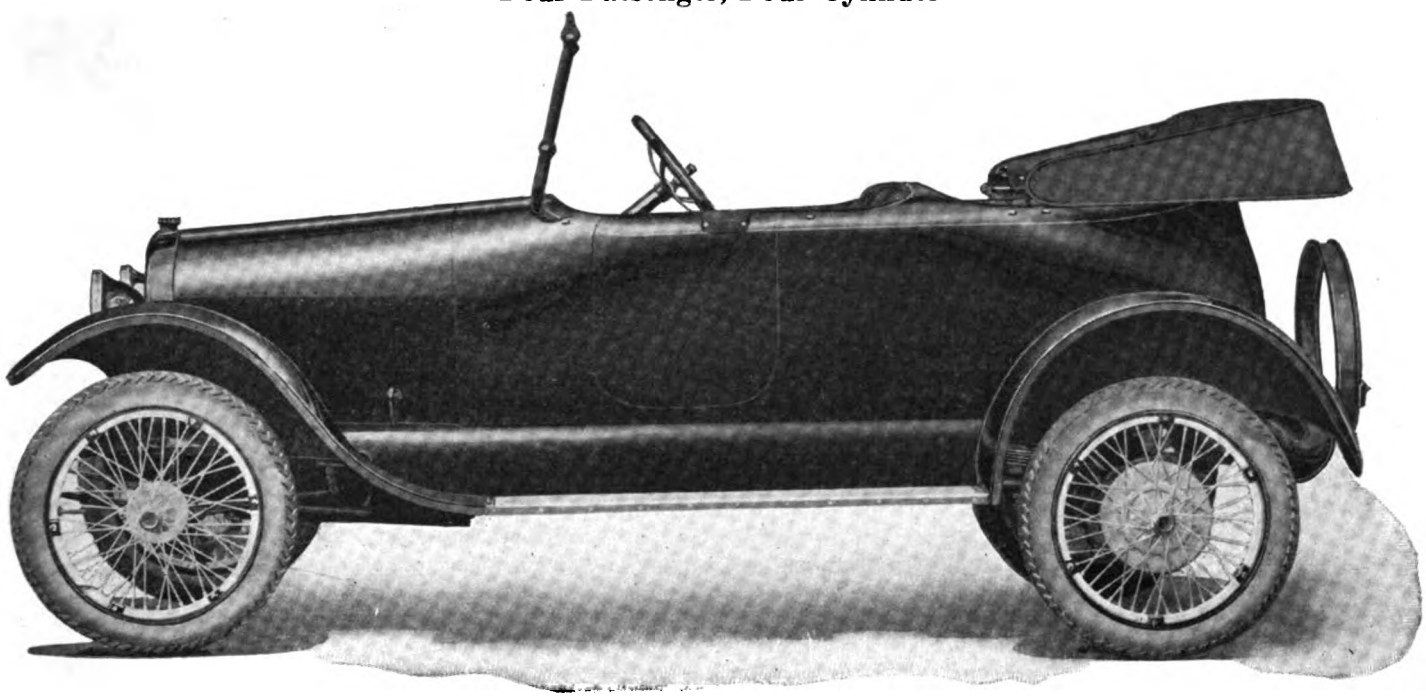
Traverse City, Mich.

When writing advertisers please mention Motor World—It identifies you

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NAPOLEON MODEL 18-35

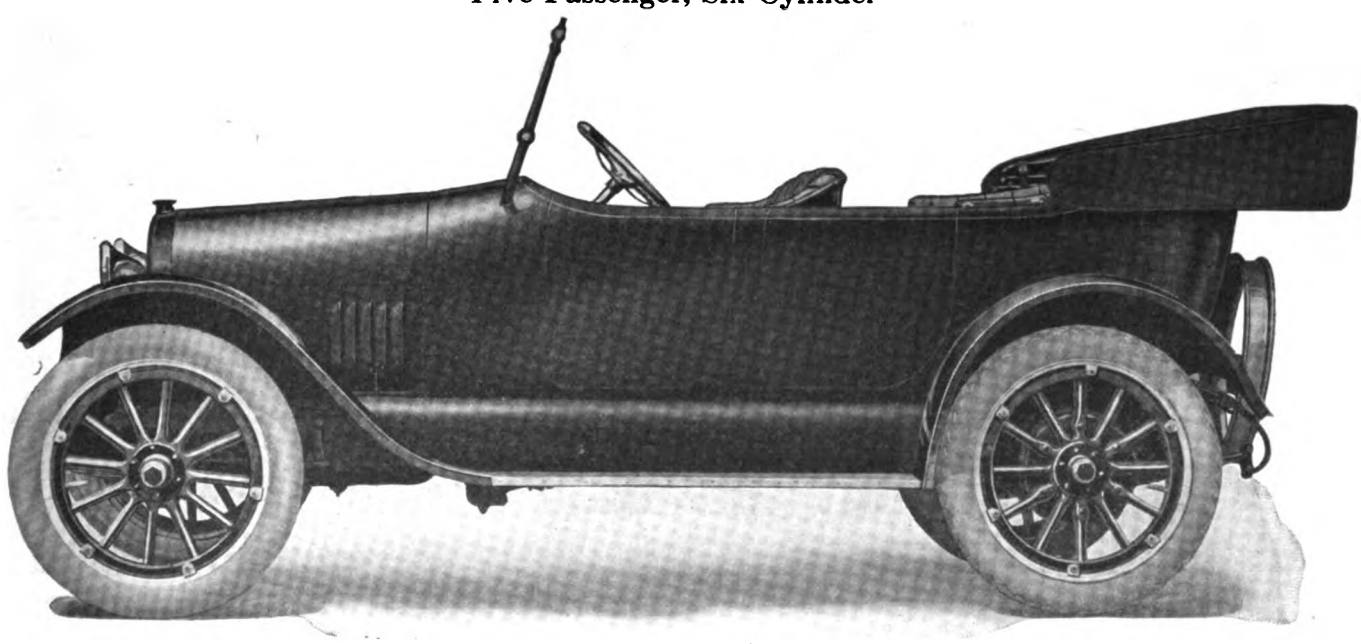
Four Passenger, Four Cylinder



The most graceful four-passenger car built in America today. This popular Napoleon car has the distinctive designs and completeness of refinement found in cars selling double its price. It meets every expectation of what a four-passenger car should be.

NAPOLEON MODEL 18-39

Five Passenger, Six Cylinder



One only needs to read the specifications of this wonderful car to be convinced of its true worth. Built from the most dependable material. Timken Bearings all through. Delco starting and ignition. Goodyear Cord Tires. Red Seal Continental Motor. A car of striking appearance, pleasing to the eye and luxuriously cushioned, shaped to offer maximum comfort. You can pay more but you cannot get better material, performance and comfort.

LISTEN, DEALERS—We are too busy in our new factory, building cars, to attend the shows, BUT our cars are right—our prices are right—our discounts are right. Write today for particulars.

Traverse City Motor Car Co., Traverse City, Mich.

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Strangling the Periodicals

Congress at its last session passed a hasty postal law increasing the postage on periodicals from FIFTY TO NINE HUNDRED PER CENT.

Some periodicals will be killed—all will be restricted in circulation and crippled. There will be fewer readers, and the habit of reading curtailed. The great function of periodicals is to assist in the spread of ideas—by printing the achievements in the world of thought, culture, and science.

Thus to shut out farm journals—as these zone rates will—will lessen the productive power of our country by millions of dollars through loss of better methods. Shut off trade journals and you decrease the manufacturing power by more millions. Shut off the religious papers and there are shut off channels that have raised millions of dollars for distressed humanity. Shut off the great periodicals of the home and there is throttled an avenue that has given expert instruction to hundreds of thousands of mothers and saved their babies to health and citizenship.

These national periodicals are printed in the big cities—and the first zone, the cheapest zone, is in or near those cities; there are many educational opportunities near cities, and the cities will read anyway. Small towns and distant districts depend to a large extent upon periodicals; thus this law increasing periodical postage where it is most needed shuts off opportunity where needed. It penalizes periodical readers.

Repeal this law. Repeal this FIFTY TO NINE HUNDRED PER CENT periodical postage increase. Sign the petition below and mail it. Put a cross mark in the square—save the periodicals and the work that they have done and are doing for national education and patriotism.

SIGN BELOW.

CUT OUT. MAIL TO CHARLES JOHNSON POST, Room 1417, 200 FIFTH AVENUE, NEW YORK CITY

PETITION TO CONGRESS—Sign Here!

The spread of education, of culture, of scientific knowledge and advancement, and of our vast internal merchandising and manufacturing has been, and always is, vitally dependent upon the freest and cheapest circulation of periodicals. The penalties resulting from any restriction on the freest possible circulation of periodicals will be destructive of the best interests of our economic life and the opportunities of developing our best citizenship.

The postal amendment passed by the last Congress increasing the postage on periodicals from FIFTY TO NINE HUNDRED PER CENT will throttle or destroy our periodicals at a time when the widest and most extensive circulation of publications is essential to the patriotism, education, and upbuilding of our country.

Therefore, I the undersigned, do most earnestly demand the repeal of this burdensome periodical postage amendment.

Name.....

City or County.....

Street Address.....

State.....

Periodicals mean much in your life. If you will help by a few arguments with your acquaintances and an occasional letter in a spare moment, put a cross mark here.

Will you help in securing the repeal of this iniquitous law? ☐

CUT OUT. MAIL TO CHARLES JOHNSON POST, Room 1417, 200 FIFTH AVENUE, NEW YORK CITY

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MP Cable



REWIRING jobs, rewired with MP Cable means wired with good cable.

MP Cable has the advantage of always being definitely good, dependable and uniform. Its manufacture is superintended by practical men who have passed thru the school of practical rewiring.

A box of MP Cable bought today matches in size, quality and construction a piece of MP Cable bought six months ago, or six months hence.

Be sure your next rewiring job goes out insured by MP Cables. Your jobber can supply you. Sold in convenient packages. Write for prices —they are interesting.

MP TRADE SERVICE

MP Service

backs all MP products. It gives the dealer and owner an unusual service of practical and technical experience

MP Cables

Primary and Secondary Ignition Cable
Rubber Covered Braided

Lighting Cables Braided and Armored

Starting Cables Braided

Ford Ignition Sets

MOTOR PARTS COMPANY

Factory Distributors and Manufacturers

816 North Broad Street, Philadelphia, Pa.

NEW YORK BOSTON SPRINGFIELD BUFFALO

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VESTA STORAGE

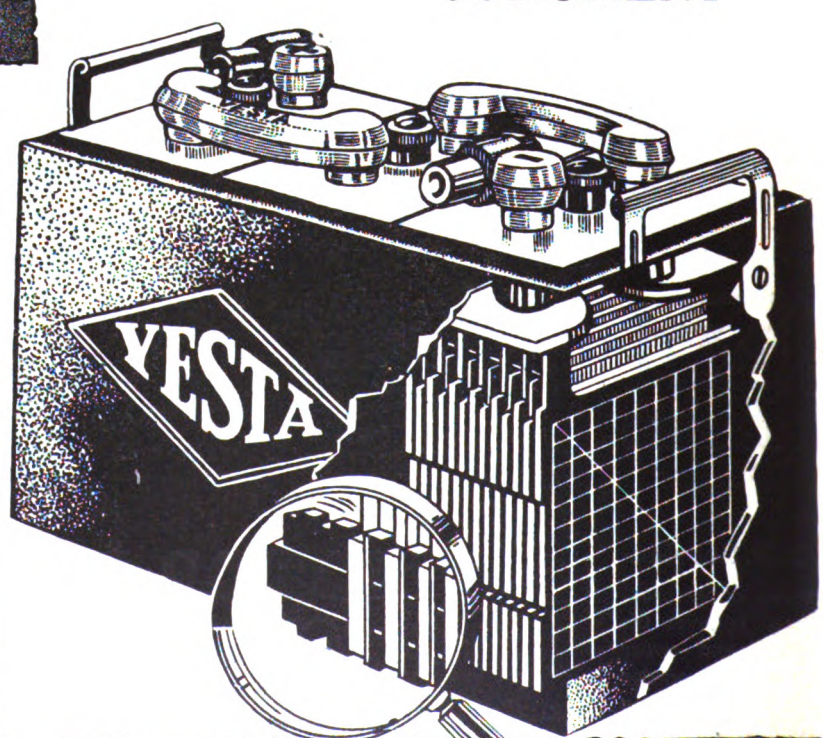
APPEALS TO YOUR JUDGMENT

THREE GREAT VESTA TRIUMPHS

The Indestructible Isolator positively locks the plates apart and prevents short-circuits. Entirely immune to the attacks of battery acids.

The Impregnated Wooden Mats absorb battery acids as freely as ordinary mats and form a perfect path for the current, yet prevent "treeing" and its disastrous consequences.

Titanium, a rare mineral, hardens the lead plates, giving them longer life. It precipitates all minerals and impurities in solution and adds vastly to the efficiency of the battery.



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VESTA BATTERY

In every field of manufacture there is one make that is above the common standard. In storage batteries it is the VESTA.

Too good to be sold in lots on a price basis in competition with ordinary batteries, but preferred by car owners who replace equipment according to their own good judgment.

The features of VESTA construction are all patented improvements which definitely and positively add efficiency, reliability and long life to the motorist's battery service.

It is good business to handle the best because the best means repeat sales, recommended sales and the good-will of your trade.

Dealers should write for information on the VESTA and our SERVICE STATION PLAN.

VESTA ACCUMULATOR CO.

2103 Indiana Avenue Chicago, Ill.

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Another Great

This car will be exhibited at the Chicago Show — Space G24 to 49 in the Greer Building.





This car will be exhibited at the Chicago Show — Space G24 to 49 in the Greer Building.

By World's Champion Light Six

6,202 Miles With SEALED Hood, Clutch and Transmission

CHICAGO to the Pacific Coast and back—no CHANCE to touch the engine—no chance to even LOOK at clutch or transmission—that is the latest wonderful record of the ELGIN SIX.

The Valve-in-head Motor never faltering on the steepest inclines, in the deepest mud nor the heaviest sands—

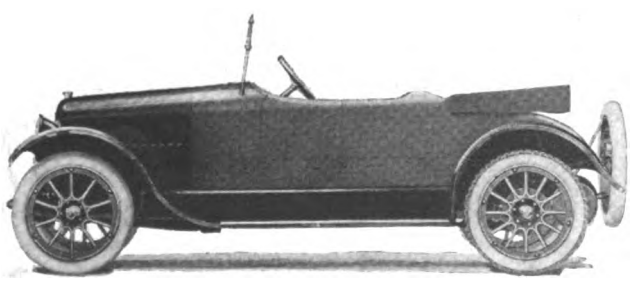
The CLUTCH holding on mile after mile of steepest mountain climbs—

The BRAKES holding fast on mile after mile of downward plunges—where slipping meant death—

What eloquent proof of the 100% *stamina* and *dependability* of this strictly stock ELGIN SIX.

And Economy—19.4 miles to the gallon of gasoline.

Elgin Six



Elgin Six 4-Passenger Roadster, $1095

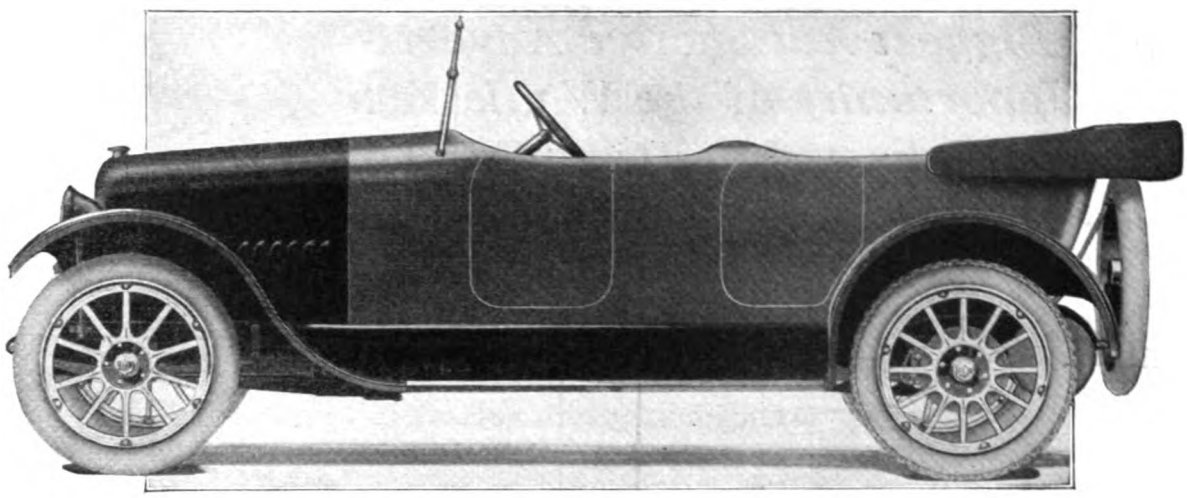
F. O. B. Chicago

A car for business and professional use, as well as for all-'round driving. Roomy enough for four people, yet not too large for one or two. Front seats divided. Beautiful yacht-line design. A popular, practical model. Same chassis as touring car, with 117-in. wheelbase, valve-in-head motor, etc.

A full Page Ad. on this Story appeared in the Saturday Evening Post, January 12, 1918

Digitized by Google

Victory Scored



Elgin Six 5-Passenger Touring Car, $1095 F. O. B. Chicago

A roomy, impressive car. 117-inch wheelbase. Valve-in-head motor. Quality upholstery and finish throughout. Flexible, powerful, smooth running and easy riding. The most economical car of its size. Beautiful, durable. A family car which old and young alike enjoy.

ENGINE, clutch and transmission performed *without adjustment—without repair*—for two solid months of continuous travel under the roughest usage.

The Elgin climbed and descended the precipitous slopes of the Rocky Mountains; threading its way along tortuous, rock-strewn mountain trails; plunging through unbridged streams.

Without a break the car ran perfectly in the freezing, rarefied atmosphere above the clouds; and cooled perfectly in 132 degrees of desert heat, where heavy pulling increased the difficulty of *keeping* a motor cool.

A broken fan-belt—compelling the car to travel a thousand miles homeward *with a still fan*—a performance almost unbelievable—added a crucial test.

The record-breaking run from Chicago to Miami, Fla., the Minneapolis-Fargo dash, and many other famous ELGIN winnings had fairly earned for the ELGIN the title of "World's Champion Light Six."

Hence, when the officials of the Chicago Motor Club determined to secure authentic data on the condition of the two great national highways—The Lincoln Highway and The National Old Trails Highway—they selected the ELGIN SIX because of its previous wonderful records. It was made the "Official Scout Car," traveling under the auspices of the Chicago Motor Club, the American Automobile Association, the Detroit Automobile Club, and many other Associations affiliated in the Good Roads Movement of America.

In the Service of the U. S. War Department

But the greatest honor was conferred upon the ELGIN SIX when Secretary of War Newton D. Baker, in a personal letter, appointed it Official Scout Car to report transcontinental road conditions to the War Department—to gather information that may prove most valuable to the War Department in emergency movements of troops and supplies.

It was a commission of honor for the ELGIN. No car had ever been sent on an errand so important to this Government. No car had ever been charged with a service so distinguished.

Successful dealers are fast coming to the Elgin Six.
A highly profitable connection may be awaiting YOU.
Wire for territory and full details.

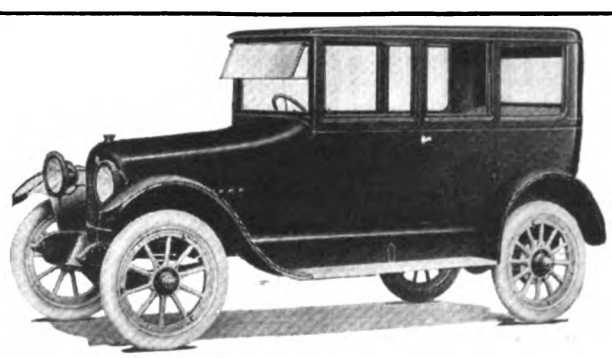
Address Dept. 16D

Elgin Motor Car Corporation, Chicago, U. S. A.

Elgin Six Sedan, $1645

F. O. B. Chicago

A richly finished, luxuriously upholstered car that meets the all-season, all-weather requirements. Interior of best Bedford Cord. Plate glass windows. Silk curtained rear and rear quarter windows. Patented, adjustable steering wheel. Heavy Brussels carpeting for the floor. Electric dome light for interior.



Elgin Six

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The Biggest Automotive Advertising Opportunity of the Whole Year Now Knocks At Your Gate For The Last Time!

On January 24th next the Big Chicago Show Issues of Motor Age and Automotive Industries will be published. You have until noon of January 21st to get your advertising "copy" into our hands (New York Office for Automotive Industries; Chicago Office for Motor Age).

These are the Final Guns in the Big Push for 1918.

They are *Big* Guns. Their combined circulation takes in practically all the motor car owners to whom it is worth while addressing your message. Their combined merchandising influence is far greater, far surer, far more valuable, dollar for dollar and page for page, than any other mediums in their field.

These issues cannot await your convenience. They are carrying the advertising stories of your fellow manufacturers and distributors, who realize and appreciate the importance of this particular time, and these particular vehicles of publicity.

You Have Until Noon of January 21st To Come in with the Winners. After That the Big First Push of 1918 Will Be Over. Don't Let Your Product Be "Among The Missing"!

Digitized by Google

It Pays to Advertise In These Show Issues!

The large volume of advertising that has come and is still coming to our New York and Chicago offices for insertion in the Big Show Issues is significant. It demonstrates the confidence that prominent Manufacturers and Distributors have in the actual money value of such advertising.

These advertisers are not "taking chances," or "trying their luck." They *know* what such advertising will do and *has done* for them.

This advertising is placed by men who have had experience in publicity and who know that the very foundation of successful business lies in proper publicity in the Trade Papers.

They know that these particular issues are of *vital* importance to advertisers in the automotive fields, for this is the beginning of the 1918 season and the impression made now is a deep and lasting one, and one that puts the whole season's business on a solid foundation.

If you are not represented by a thoroughly adequate advertisement in these issues you are making a mistake of omission that will cost you much additional effort and considerable profit later on.

Don't hesitate about this. It is not a question of ifs, ands or buts. The advertising value of these issues has been absolutely demonstrated year after year.

And this year is of exceptional importance. What you do—and what you don't do—will count more heavily for or against you than ever before.

MOTOR AGE

Chicago Show Issue, Jan. 24, 1918

MOTOR AGE REACHES NEARLY EVERY CAR OWNER WORTH REACHING; the owners who *really respond* to advertising.

THIS PARTICULAR ISSUE REACHES THEM AT SHOW TIME, when they are more than ever likely to consider favorably your advertising story.

IT HAS A *WIDE* INFLUENCE, nearly 90% of its circulation being in small towns, where it is the principal source of information for all interested in motor car affairs.

THIS ISSUE IS THE MOST IMPORTANT OF THE WHOLE YEAR, and advertisements in its pages, while they cost no more than those in ordinary issues, possess additional value because of the extraordinary interest at this season.

AUTOMOTIVE INDUSTRIES

Chicago Show Issue, Jan. 24, 1918

THIS PUBLICATION IS *THE* AUTHORITY on Automotive matters.

THROUGH ITS PAGES YOU CAN REACH the Engineer; the Manufacturer; the large, substantial Distributor; the technically well informed car owner.

YOU CAN TACKLE THE EXPERT MOTORIST FIRST HAND through Automotive Industries, and tell him about your product, so that he may O. K. it the next time his advice is asked by prospective buyers.

THIS PARTICULAR ISSUE CARRIES THE EXTRA IMPORTANCE AND SELLING VALUE OF SHOW TIME. It is filled with special information regarding cars and car parts in a complete form not found in ordinary issues. It is read with *unusual* attention.

Get Busy On Your "Copy" Today and Send It In At Once! This Is The Last Call!

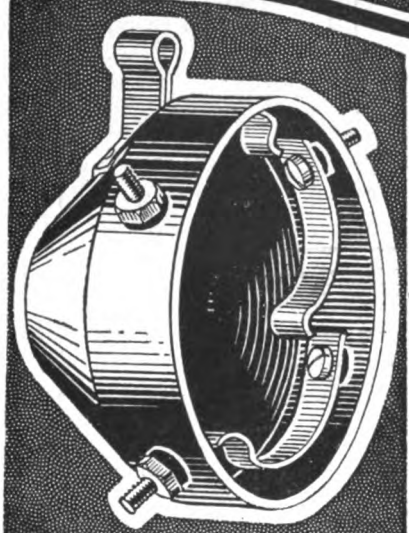
THE CLASS JOURNAL COMPANY

239 West 39th Street, New York **Mallers Building, Chicago**

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TRADE APCO MARK

TIMER FOR FORDS





$1.00 LIST

I AM a brand new idea in Timers for Ford cars and I will give your Ford such ignition as it could not get except with a high tension magneto.

I WILL serve you longer and with less trouble than any other Timer, at any price, because I am not an ordinary Timer, made cheap, but an extraordinary Timer built well and sold at a low price.

I AM not dressed up in gold plate, enamel or even aluminum paint; but man, how I can work!

I COME of good stock; my springs are clock springs; my roller is high grade hardened steel, running on a hardened steel bushing held in a die casting; my shell is heavy drawn steel; my insulation is the finest quality bone fibre.

I WILL give you more power, more speed, a quicker getaway, an easier start, smoother running, no short circuits, longer life to your platinum points, more miles to the gallon of gasoline; and take it from me, when I go to work for you, you can forget your Timer troubles.

I CAN work hard, and if I wear out my springs, they only cost twenty cents a set and you can replace them in a few minutes on the road. If your car lasts long enough to wear out a roller, a new one costs thirty cents complete, and as for my body, it never wears out.

I COME in a heavy cardboard box and the Apco on the outside is all the reference you need.

I WILL work for you as long as I live and the "good die young" phrase does not apply to me.

Dealers' Discount, 25%
In Lots of Fifty, 33⅓%

Now stocked by 200 Jobbers.

All together, all the time,

FOR EVERYTHING AMERICAN.

APCO MANUFACTURING CO.
PROVIDENCE, RHODE ISLAND

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Blankets won't help much if—

the oil you are using does not flow freely at Zero.

SUPREME AUTO OIL flows freely at Zero.

STARTS WITH THE ENGINE

THIS is most important during the Winter months. You should know whether the oil you are using "flows freely at Zero." All oils do not possess this feature—notably the paraffine-base oils, which thicken up under cold and often cause great damage to the motor.

MANUFACTURED BY

GULF REFINING COMPANY

The Largest Independent Refining Company in the World

General Sales Offices: Pittsburgh, Pa.

District Sales Offices:
New York Philadelphia Boston Atlanta Tampa New Orleans Houston



There is MORE POWER in
THAT GOOD GULF GASOLINE
AND SUPREME AUTO OIL
MANUFACTURED BY
GULF REFINING COMPANY
PITTSBURGH, PA., U. S. A.

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THE WELL KNOWN LINE OF

Speer Automobile Brushes

Will be Exhibited at the

Eighteenth Annual National Automobile Show

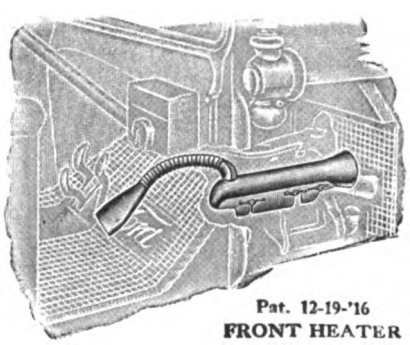
Grand Central Palace, New York City

January 5 to 12, 1918

Section D-90, Fourth Floor

A cordial invitation is extended to each and every person connected with the Automobile Industry, to call and inspect the line.

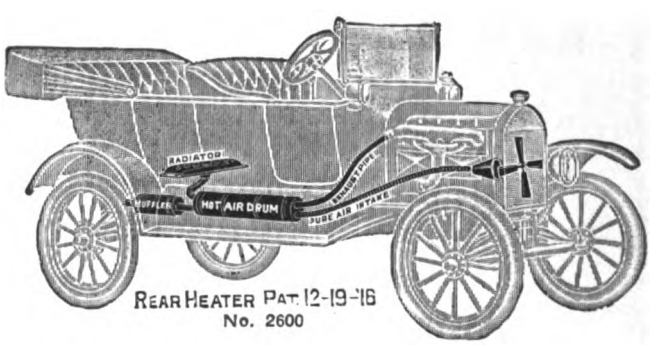
SPEER CARBON COMPANY, ST. MARYS, PA.



Pat. 12-19-'16
FRONT HEATER
No. 2500

The New *Presto*
PureAir Heater for Fords

Front Heater . $5.00
Rear Heater . . 6.50



REAR HEATER PAT. 12-19-16
No. 2600



No. 2100—Patented. Presto Electric Under - the - Hood Heater.

Presto Specialties

set the pace, in introducing many new products it pays to stock.

Practically all jobbers catalog PRESTO Specialties. Practically all live dealers sell them.

METAL SPECIALTIES MFG. COMPANY, Inc.
338-352 N. Kedzie Avenue CHICAGO
Eastern Branch: 16-24 W. 61st St., N. Y. City
Western Branch: 149 New Montgomery Street, San Francisco, California



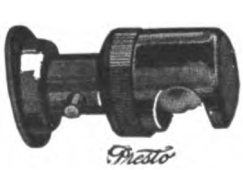
No. 3-P Double outlet Y Plug Socket For Dash



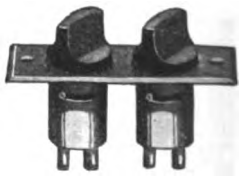
No. 252 — Complete Combination Automatic Cord Winder and Cigar Lighter. One of 6 styles.



No. 8—Elbow Plug for Ford Headlight.



No. 647-S—"Bull Pup" Dash Lamp. (One of 24 different styles.)

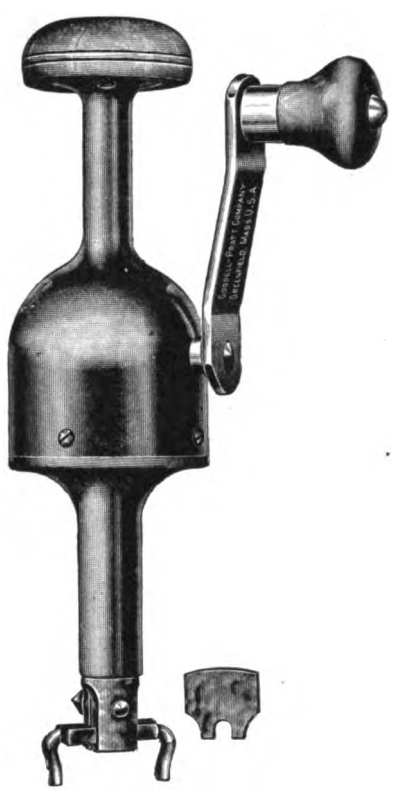


No. 417—Dash Turn Button Switch—made single, double, triple and quadruple.

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GOODELL-PRATT

1500 GOOD TOOLS



PARTIAL LIST OF TOOLS FOR MOTORISTS

Thickness Gauges
Bearing Scrapers
Brass Hammers
Socket Wrench Sets
Adjustable Wrenches
Rim Wrenches
Chisels, Punches, Etc.

VALVE GRINDING

is absolutely necessary in order to keep a motor car at top notch efficiency. What was formerly drudgery is now easily and rapidly accomplished with the Goodell-Pratt Automobile Valve Grinder.

The back and forth movement, necessary to obtain a perfect valve seat, is caused by a simple mechanism actuated by a continuous rotation of the crank.

Both an adjustable Spanner and a Blade are provided in order that the tool may be used on any type of valve.

This Valve Grinder is of such weight that no additional pressure is needed to accomplish the best results.

MR. DEALER

A Valve Grinder that the United States Government considers good enough for its own use is a good item for you to push. Every motorist is a prospect, sell him a Valve Grinder that he won't be sorry he bought.

Goodell-Pratt Company

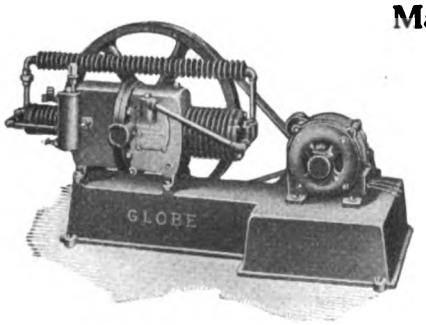
Greenfield, *Toolsmiths* Mass., U. S. A.

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The Mechanical Advantages of

GLOBE AIR COMPRESSORS

Make Them Safe—and Pay



Type B Two-Stage Air Compressor.
A Complete Motor Drive Unit.

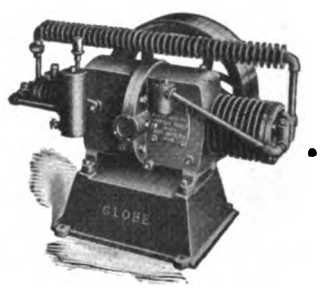
GLOBE Air Compressors make friends. They reduce to a minimum the cost of maintaining your air service, and multiply your opportunity to make back that cost—with profits—from sales in other departments, that come "through the air."

GLOBE Two-Stage Compressors combine every modern improvement of worth, besides many exclusive features. Made for all purposes, but especially for use in Air Stations for filling automobile tires.

Always dependable, they keep the pressure right.

The New Globe Unloader Saves Additional Money, Time and Trouble

Permits the compressor to start without any load. Prevents throwing or burning of belts when starting. With motor drive outfits eliminates the danger of burning motor, as the motor comes up to speed without load. By operation of the unloader, the oil trap is automatically drained every time the compressor stops—a feature in itself worth more than the cost of the unloader. Can be attached to Type B GLOBE Compressor already in use. No extra charge with motor drive equipments when furnished complete with motor.

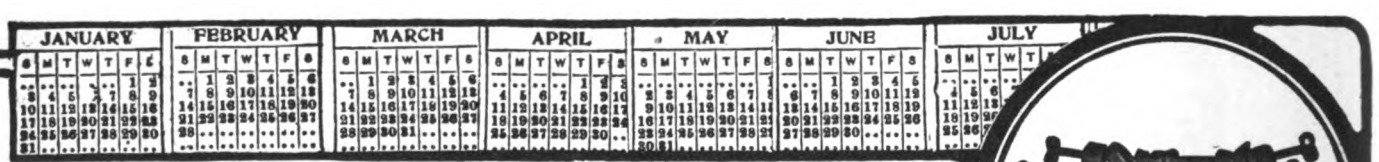


Write for free illustrated literature showing the exact equipment it will pay you to install.

GLOBE MANUFACTURING COMPANY

Battle Creek **Dept. D** **Michigan**

See Us At the Chicago Show. Coliseum Basement, Space S.



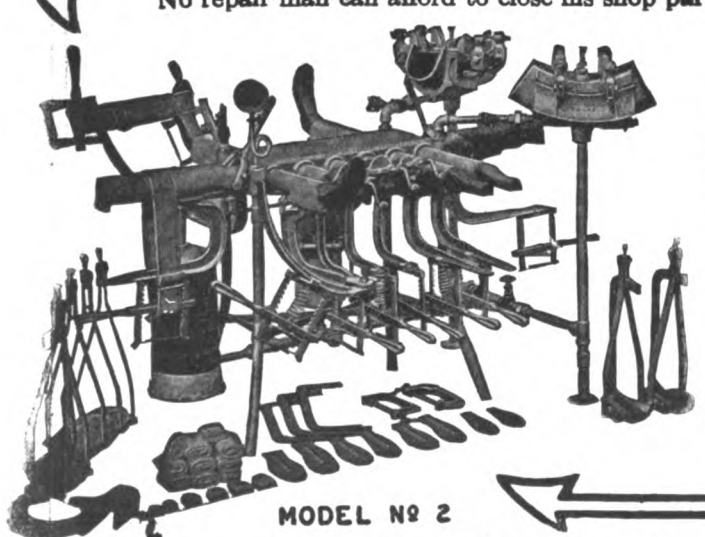
AN ALL YEAR VULCANIZING BUSINESS

The ARTHUR VULCANIZER has advanced vulcanizing from a mere one-season business to an ALL YEAR BUSINESS.

It secures repair work during even the months that were formerly the dull season.

No repair man can afford to close his shop part of the year.





THE ARTHUR MODEL No. 2 FOOTWEAR & TIRE VULCANIZER

is the outfit that has opened the way to success. It handles all kinds of repairs to rubber foot wear and repairs to inner tubes and casings.

Write for full information and catalogue.

THE ARTHUR VULCANIZING MACHINE COMPANY

Griswold St. **Warren, Ohio**

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NEW GOODS FOR LIVE DEALERS!

The Progressive Dealer is not satisfied with what he has, but is always interested in New Accessories!



The No. 312 Cut-Out

The No. 312 Cut-Out Valve for Ford Cars. Different from all other Cut-Outs. It sells on sight. Dealers send for sample!

Retail Price.$1.50

Jumbo Grease and Oil Gun



The best value on the market. The Jumbo Grease Gun is known and recognized by motorists the world over, 15 oz. capacity. Finished in high-class manner. Will handle Grease or Oil in all kinds of weather.

Retail Price $2.50

The Four-in-One Screw Driver



This clever Tool should be in the hands of every Dealer. Useful around Automobiles, in the Shop and in the Home! Highly polished and Nickel Plated all over. All Blades of highest grade steel.

Retail Price 60c

This Handsome Display Case

will be furnished to any Dealer who purchases the Four-in-One Screw Driver! The Case is FREE with an order of Three Dozen Screw Drivers. Write us or ask your Jobber.

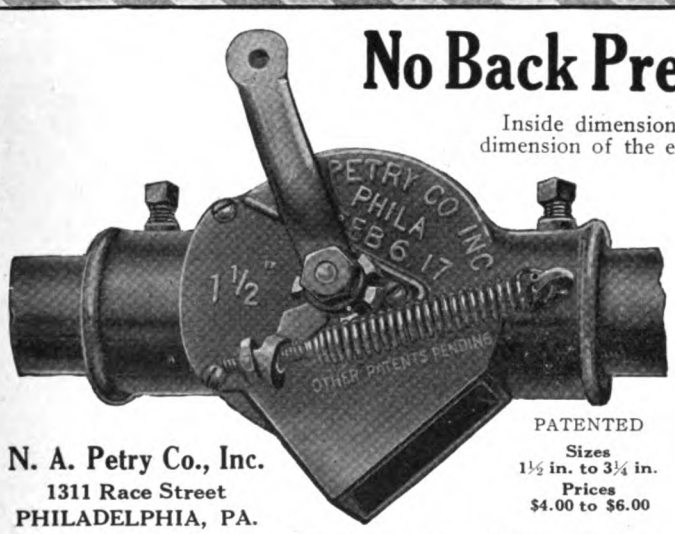


Dealers! Send for our Circulars and Catalogs! Our extensive line of Specialties is carried by all live Jobbers.

E. EDELMANN & CO., **359 East Ohio Street, Chicago, Illinois**

New York Office—119 West 42d Street, New York San Francisco Havana Winnipeg

No Back Pressure with the Petry Cut-Out



Inside dimensions of the cut-out at every point are larger than the inside dimension of the exhaust pipe, and no air pockets can be formed that might cause back pressure.

Quickly and easily installed, having eight points of adjustment—and once applied, its position is permanent.

Gas-tight joints. Adjustable spring cannot anneal, being well away from all heat. No fluttering of valve. No strain on exhaust pipe. Gases are discharged through a flaring opening which intensifies sound, facilitating tuning up of motor.

Easy to operate—no complicated parts to get out of order. A size perfectly suited to every car.

PATENTED

Sizes 1½ in. to 3¼ in.

Prices $4.00 to $6.00

N. A. Petry Co., Inc.
1311 Race Street
PHILADELPHIA, PA.

DISTRIBUTORS: Gray-Heath Co., 1440 Michigan Ave., Chicago, Ill.: Hughson & Merton, Inc., 77 O'Farrell St., San Francisco. Cal.; 1203 Marsh Strong Bldg., Los Angeles, Cal.; 421 Oregon Bldg., Portland, Ore.

The Petry Universal Pedal Pat. Pending

Six different positions.
Adjustable to pull or push; for any use for which a pedal is required.
Muffler cut-outs; any style, kind or size.
Accelerator. Exhaust Whistle or horn. Heater valve.



The only pedal on the market that will meet all requirements. Made of high grade steel with special processed GUN-BARREL FINISH, not plated. Price 75 Cents Each.

PETRY CUT OUT

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More Profit More Satisfaction

Here is a truck with 8 IMPROVED big features—each one absolutely exclusive. A truck, therefore, that gives the dealer NEW talking points—new arguments that immediately interest the prospect, and that so minimize competition that sales are quickly made. A truck that is a PERPETUAL advertisement, as practically every one sold, sells others.

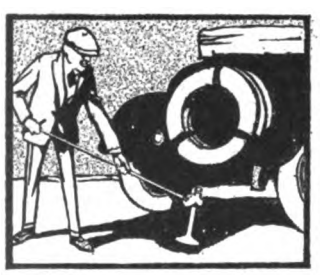
ARMLEDER Motor Trucks

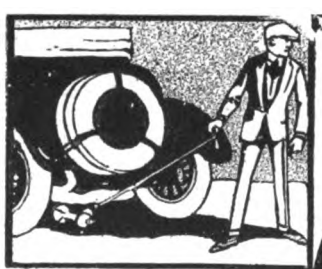
2 Ton and 3½ Ton Worm Drive

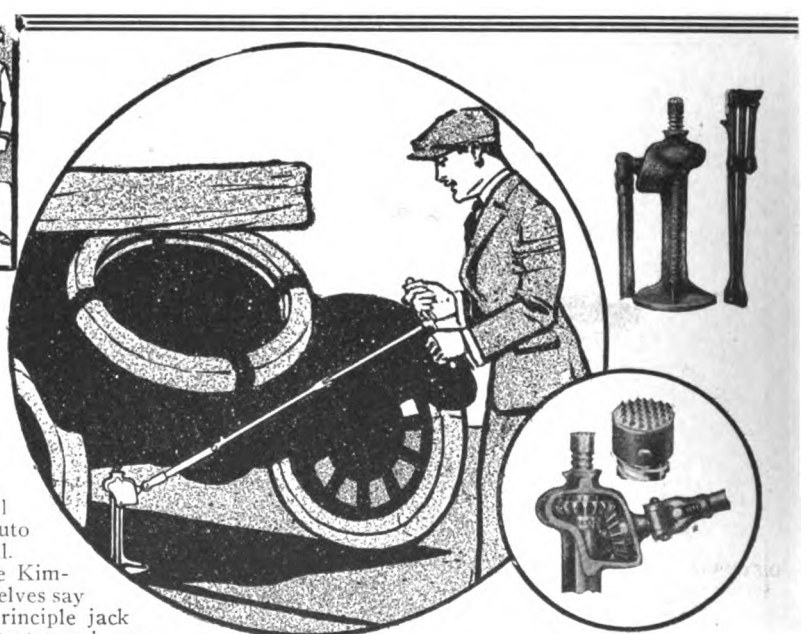


Every part standardized and the best of its kind. Assembled and sold by a concern of the highest financial standing. A guarantee of quick, reliable service and immediate part replacements. Easiest truck on tires—most economical service and up-keep. The truck that gives the dealer no trouble and consequently the most profit. Opening for few more reliable dealers.

THE O. ARMLEDER CO.
CINCINNATI, U. S. A., Dept. B







Every Operation without once getting under the car

You don't have to get down in the road and crawl under the car to put a Kimball Jack in position. You do it with the long handle. You give the long Kimball handle a few easy turns to raise the car. To lower you simply reverse the turns, and then remove jack by the handle.

With the Kimball you avoid accidents and soiled clothing. You save time and you save labor.

Note these exclusive Kimball features

Diamond point hardened steel top with *bull-dog* grip. Ball-bearings carry the lift and thrust. No pawls; no ratchets. Ball socket holds handle rigid while sliding jack under car. Folds up; comes in small bag; takes up little space in tool box.

Motorists ready for a better jack

Motorists everywhere are tired of the cheap, troublesome jacks so often found as car equipment. They want a jack that will not break—one that can be operated with least trouble. The Kimball Ball-Bearing Auto Jack fills the bill. Dealers who use Kimball Jacks themselves say that this new principle jack is a self-demonstrator and practically is a self-seller.

Write for complete particulars about this profitable accessory.

PRICES

Sizes	Minimum Height	Extended Height	Prices
No. 1	9″	15″	$5.00
No. 3	11″	18″	5.00
No. 4	12″	20″	5.00

Kimball Special Jack that easily raises any style truck sells for $15.00

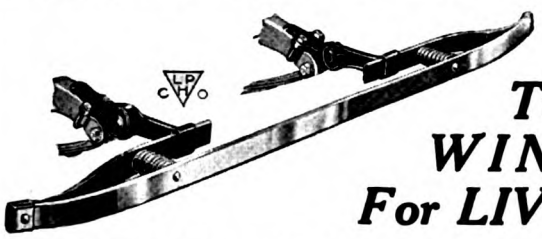
Sales Department

EDWARD A. CASSIDY CO., Inc.
Madison Ave., at 40th St., New York
Manufacturers, F.W. Mann Co., Milford, Mass

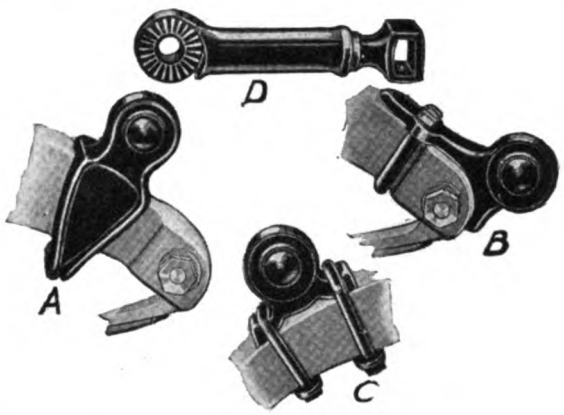
KIMBALL AUTO BALL BEARING JACK

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HALLADAY BUMPERS



Two Big WINNERS For LIVE Dealers



MULTIPLE SPRING BAR BUMPER

The last word in bumper efficiency.
Supplied with all HALLADAY fittings for all cars.
Shock absorbing, noiseless, unbreakable.

HALLADAY STANDARDIZED UNIT

Solves the bumper problem by enabling the dealer to fit practically all cars with a stock of only four parts.

Write for new catalog fully describing the HALLADAY line

L. P. HALLADAY COMPANY, Streator, Illinois

DISTRIBUTORS: Asch & Co., 16-24 W. 61st St., New York City; E. L. Thompson Co., 817 Boylston St., Boston, Mass.; Gray-Heath Co., 1440 Michigan Ave., Chicago, Ill.; Sanford Brothers, Chattanooga, Tenn., Southern Distributors; Hughson & Merton, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors.



Everything About Auto Repairing

can be found in these three brand-new handbooks. Each and every detail is explained in non-technical language, and hundreds of illustrations and diagrams make difficult points as simple as A-B-C. No man interested in automobiles should be without these books. If a car owner, they will save you many times their cost in repair charges. If a chauffeur or repairman, they will fit you for a better job and bigger pay.

Automobile Ignition, Starting and Lighting describes all important ignition, starting and lighting systems. No matter what electrical equipment a car may have, this handy volume will help you locate troubles and show you how to overcome them. 750 pages (5½x8¼ inches); 480 wiring diagrams and illustrations. Flexibly bound in genuine leather, gold stamped.....Price **$2.50**

Automobile Troubles and Repairs covers engine, carburetor, clutch, transmission, axle, brake, frame, spring, running gear and wheel troubles and repairs; also contains a valuable article on vulcanizing. 254 pages (5½ by 8¼ inches); 217 illustrations, diagrams, etc. Flexibly bound in genuine leather, gold stamped.....Price **$1.50**

Oxy-Acetylene Welding Practice gives full instructions for handling practically every kind of welding job. Especially valuable to the automobile repairman, as the examples have been taken entirely from the automobile industry. 110 pages (5½ by 8¼ inches); 117 illustrations, tables, formulas, etc. Bound in cloth, gold stamped.....Price **$1.00**

While any of these books may be purchased separately, the price of the entire three volumes is only $5.00. It will pay you to purchase the complete set, for sooner or later you will have need of each book.

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Hundreds of progressive bookdealers stock these handbooks. If your dealer can't supply you, send us the price of the books you want and we'll send them to you postpaid. Examine them carefully—use them at your work for five days. Then if they fail to suit your needs, return them and get your money back. We refer you, for our responsibility, to the Union Bank of Chicago.

American Technical Society, Chicago, U. S. A.

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TO MEET A GROWING DEMAND

PROTEXALL'S



Today's demand for efficiency, and increased production, has been in one way answered by the

Protexall Overall Suit

A one-piece garment made of Uncle Sam's khaki, which he has found is the best for wear and service; designed by experts who have evolved a special spring back that eliminates all strain.

Farmers, automobilists, repair men, mechanics, all tradesmen need and are buying one-piece suits.

Protexalls will more than meet the demand for one-piece suits.

PROTEXALL OVERALL SUITS

They Are Sold Only by Jobbers

THE PROTEXALL COMPANY, Abingdon, Ill.

I Save Money Every Day with the HARTON LOOSE LEAF GARAGE PLAN

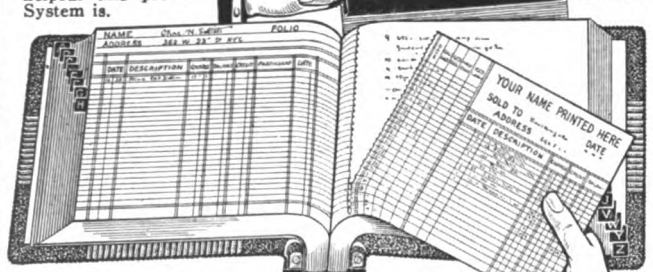


GARAGE OWNERS You are losing money every day if you have not installed the HARTON LOOSE LEAF GARAGE SYSTEM. The HARTON SYSTEM is an automatic bookkeeper that cannot make mistakes and requires no salary

The HARTON SYSTEM turns losses into profits. Garage keepers write us telling how accurate and helpful this proven System is.



A Dollar Saved is a Dollar Earned



This Page is the Customer's Bill the one underneath is your copy

A FEW REASONS WHY

1—When you make an entry, a bill and charge are made at the same time.
2—Simplified method of recording and posting all items.
3—Avoids the necessity of posting each item.
4—Requires the minimum amount of labor.
5—Statements ready at end of month for immediate mailing.

Harton's Garage and Accounting Record is another new labor saving device we make. Ask about it.

Send for Descriptive Folder and Full Particulars

THOMAS J. HARTON & CO., Inc.

Loose Leaf Specialists 212-A Church St., NEW YORK

McKAY BODIES

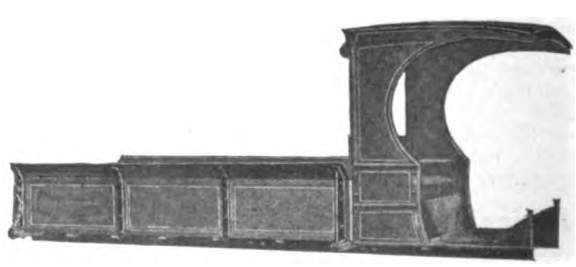
HIGHEST quality commercial bodies. All types, all sizes. Mechanically perfect, beautifully finished. Vehisote paneling.

Our line includes a body suitable for every need—from Jitneys to Juggernauts.

Write for complete catalog.

McKay Carriage Co.

Grove City, Pa.



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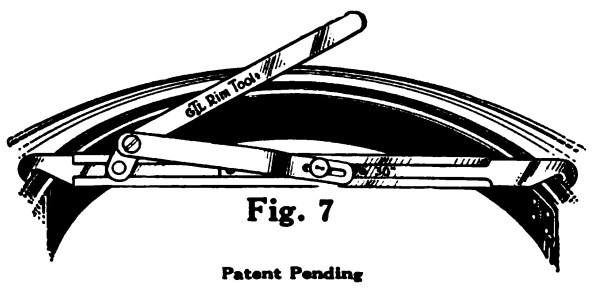


Fig. 7

Patent Pending

GL

Is the Standard Rim Tool

It takes more than advertising to standardize a rim tool—it takes more than clever salesmen to make one tool the one **jobbers, dealers and users ask for by name.**

That's why the TGL is standard.

The whole principle of the TGL Rim Tool is different. It operates in the logical way for a rim tool to operate—by removing the rim from the tire—and letting the tire drop off.

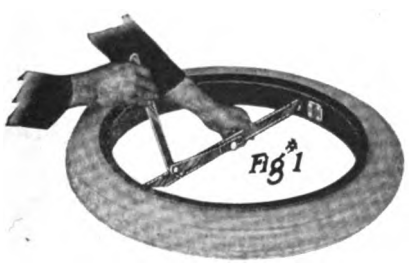
Avoids all necessity of pounding, pulling and forcing the casing. Eliminates all danger of damage—and it is the easiest tool in the world to operate.

Write for complete details and free illustrated literature describing the TGL Rim Tool. Selling fast wherever they are offered for sale. ASK YOUR DEALER.

Dealers—Ask your jobbers. **Jobbers**—Get the liberal trade discount.

Metal Products Mfg. Co.

2416 University Ave., S. E., Minneapolis, Minn.



Haywood's



Nationally Advertised

Tire Repair and Vulcanizing Service

In these days of high tire prices, the tire repair business is getting bigger and better than ever, as motorists learn the method of true tire economy. Why not cash in on this opportunity? Put in a Haywood Tire Repair Plant. Link up with a nationally advertised tire repair service. Six years of Haywood's advertising has standardized the Haywood method.

The Sign of the Man and Machine

—is the connecting link between the tire repair man and the automobile owner. It chains the established trade of hundreds of customers to your business. It connects your shop with a national tire repair service—a standardized service—a service that motorists know absolutely to be economical, practical and efficient.

The Haywood System

—is scientific—a true system of conservation of tires—a system that saves motorists thousands of dollar on tire bills. It means repairs that are lasting—vulcanizing that holds—repairs that are solid as the original tire itself, insurance to motorists of no regrets on the road.

Haywood's Tire Repairing and Vulcanizing Plants

The Haywood Plants are complete, all in one unit—are easily operated—no experience necessary. Here is your opportunity to make big money—to add hundreds of dollars in profits a year to your business. Occupies only a small part of your shop—can stand right out in the open where your customers can see it—a constant reminder to keep their tires repaired. Your shop equipped with a Haywood Plant is the motorist's logical haven for tire repairing. It completes your service—a service that customers like—a service that brings and holds business at big net profits.

Write for New Catalog

Use a letter or post card or simply send the coupon below. This brings the big book of facts—tells all about tires and how to repair them—shows outfits in use—gives proof of successes—shows how we co-operate with plenty of advertising and plenty of help—how you link up with a national service. Book gives complete details. Write today. Don't delay.

The Haywood Tire & Equipment Co.

1042 N. Capitol Ave., Indianapolis, Ind.

Haywood Tire & Equipment Co.,
1042 N. Capitol Ave., Indianapolis, Ind.

Gentlemen: Please send me full particulars of your national service of tire repairing and complete catalog and information of Haywood Tire Repair Plans.

Name .....

Address .....

.....

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For Years Keystone Tubes Have Sold on Quality

Better Tubes can't be made

The Keystone Universal Tube for Fords is the only really successful universal tube that can be used in front and rear tires on Ford cars. It is made from high grade Black stock scientifically compounded to give extreme service and is reinforced on the rim side with a strip of the best quality antimony Red rubber. It is fully guaranteed to be perfect in material and workmanship.

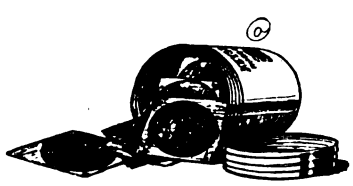
For years Keystone Tubes have been made by the roll-up Laminated System which today is being advertised by the best tube makers as the only correct system. We use a special process of our own which gives protection against tearing in any direction and lends a quality of exceptional strength and endurance.

KEYSTONE

TRADE MARK

Inner Tubes are today the choice of a great number of the better dealers who have found in them an immense factor for large profits and satisfied customers. Jobbers and Distributors can arrange for guaranteed tubes of special brand made to their order.

The Keystone—No Cement



Patches are the only patches of their kind on the market. They are pure Para rubber—one side is left uncured and adheres to the tube. A perfect patch—put up in cans. Patented and guaranteed.

The Keystone Leak Nit Rubber and Fabric Patch is put up in screw top cans containing a sheet 5″ x 18″ or 4″ x 12″, a tube of patching cement, emery cloth and full directions for using, made of pure rubber and high grade duck—a patented process, absolutely guaranteed against separation of materials. Properly applied, will outlast the tube. Can be used on splits up to 17″ in length.

See our full line during Chicago Show at our Chicago Branch, 1421 Michigan Ave.

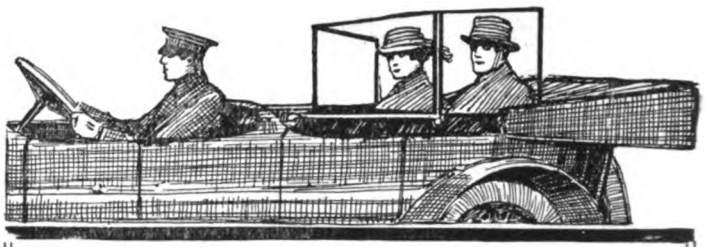
KEYSTONE RUBBER MFG. CO.
Erie **Penna.**

One of the oldest tube manufacturers in America

Branches: New York Chicago

Dealers—Get in touch with Keystone.

Write today for details and proposition.



EVERY open car owner is a prospect. The opportunity for sales is enormous.

Right now the J. H. Tonneau Shield offers the one big proposition of the hour for dealer profits. Consider its remarkable utility—

It protects the rear seat—the ladies and guests always sit there—no veils or goggles necessary; wind, dust, rain, snow—all are kept away. In conjunction with top and curtains, it provides limousine comfort. When not in use it folds down and takes no more room than a robe. Furthermore it is adjustable and may be placed close up or further forward and wherever placed remains firm and will not rattle.

J. H. Tonneau Shield

Thoroughly tried and perfected—not new. Adaptable for use on any car—it is simple, durable, dependable, handsome in appearance and easily installed. Waterproof apron at bottom keeps robes dry. Beautifully finished frame—fine quality glass.

The price is reasonable.

Don't miss this—Dealers—Write today.

See Us at Chicago Show. Space D11.

J. H. TONNEAU SHIELD COMPANY
1777 BROADWAY NEW YORK

SPEED COUNTS

Just as much in the shop as on the road, for the longer time a repair job is in your shop the more it costs you to do it.

"MORSE" TOOLS

Will get your work out on time.

Catalog on request



MORSE TWIST DRILL & MCH. COMPANY
New Bedford, Mass.

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Increase your shop earnings with the

W. B. LATHE ATTACHMENT
FOR UNIVERSAL GRINDING

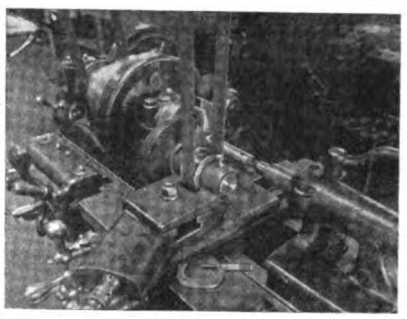
Quickly attached to the compound rest of a lathe and driven by an overhead drum, it makes possible the grinding with accuracy and speed of hardened mechanical parts.

The W. B. Grinder is superior to the direct connected electric type because—it is smaller in bulk with greater power, has large adjustable bearings and is entirely free from electrical trouble.

With this equipment all kinds of cylindrical and internal grinding can be done—such as wrist pins, pistons, knuckle bolts, thrust bearings, ball bearing cups, cones, piston rings, hardened transmission shafts, milling cutters, reamers, etc. With internal grinding spindle, it will grind holes in gears, ring gauges or other parts.



Cylinder Grinder



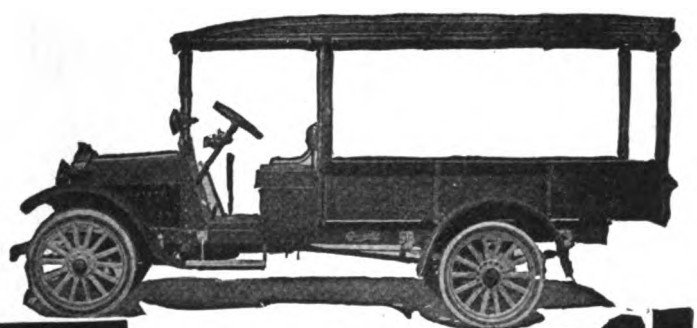
Price $60.00 F.O.B. San Jose.

SPECIFICATIONS

Spindle—Hardened and ground, tool steel taper bearings, 1⅛" diameter.
Bearings—Phosphor bronze adjustable bearings.
Pulley—2½" x 1½" flanged, takes 1¼" belt.
Collets—Interchangeable wheel collets.
Countershaft—Tight and loose pulleys, 2" x 4"—drum 7" x 36".

ARTHUR T. BRITTON, 590 South 1st Street SAN JOSE, CAL.

Manufacturer of the W.



Commerce

1 Ton Trucks

A Year Ahead *of* Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

Commerce Truck Motor, Detachable Head—Torbensen Rear Axle—Detroit Steel Products Company Springs.

One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company
DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.



Save Extra Auto Tax

Every ounce of energy wasted by leaky cylinders is an *extra* tax on your auto or truck. And that tax grows with advancing gasoline prices.

Stop this costly leakage with Ever-Tight Piston Rings.

Accurately machined from fine-grained, springy grey iron, they hug the cylinder wall closely without binding. Conform exactly to out-of-round cylinders, saving reboring. Gas can't leak through or by them.

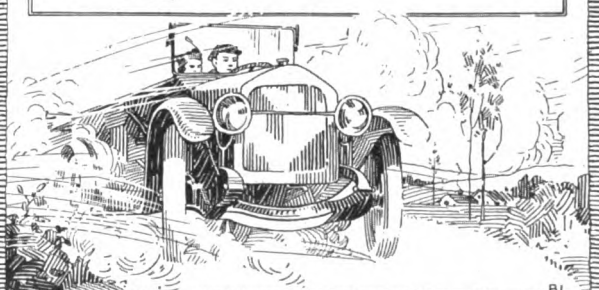
Ever-Tight Piston Rings are safeguards against imperfect combustion with resultant carbon deposits; against smoky exhaust resulting from oil leaks. They increase engine efficiency from 15% to 25%, thus reducing running expense.

Demand Ever-Tight Piston Rings of your dealer or repair man.

EVER-TIGHT PISTON RING CO.
Chestnut Street :: :: Saint Louis

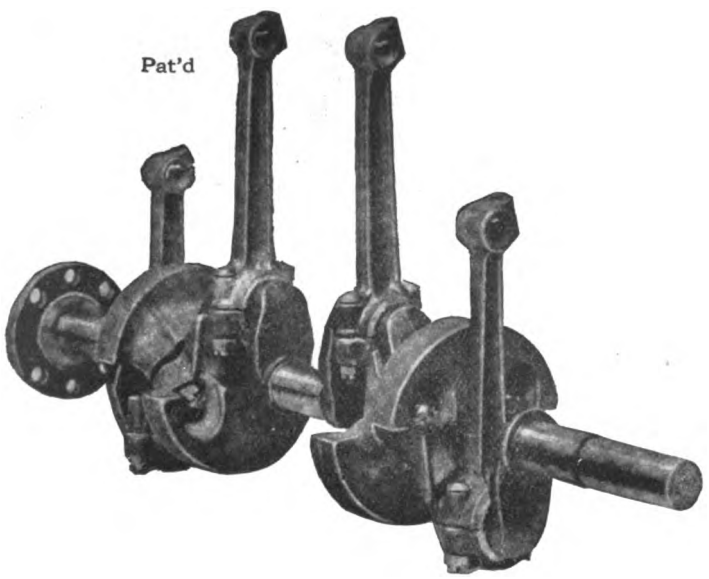


This perfect three-piece construction justifies the name—EVER-TIGHT. These close fitting right angles are absolutely gas tight.



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Dunn's Counterbalances For Fords



Give Ford Motors Free Rein

There is just one way to insure a smooth-running Ford motor, with a continuous flow of power, like that realized in cars equipped with multiple-cylinder motors. COUNTERBALANCING THE CRANK SHAFT IS THE SOLUTION.

DUNN'S Counterbalances take the drag off the motor, and let it run free. They overcome the natural vibration and friction that keeps Ford motors from doing their best.

Owners get most out of their Fords, equipped with DUNN Counterbalances.

Sell to Owners of All Kinds of Fords

DUNN Counterbalances are equally necessary on racing Fords, passenger models, delivery cars and tractors. They add enough to the life of the motor to pay for themselves quick. They insure more speed, more power, greater economy. They belong on every Ford.

Simple and easy to install. A wrench is the only tool. No grinding, drilling or machining.

Dealers—Get your supply of DUNN Counterbalances now. Equip every Ford in your territory for Spring. *Price per set, only* $12.50.

Write for free illustrated literature and complete details.

THE DUNN COUNTERBALANCE COMPANY
115 North 15th Street, Clarinda, Iowa

THE DUNN COUNTERBALANCE SALES CO. of California
1220 San Pedro Street, Los Angeles, Calif.

The Sign of Service

Help Win the War

SAVE OUR STEEL

We guarantee a high grade Ball Bearing properly reground and fitted equal to a new bearing.

Do not confuse it with seconds. The rings are time-tested and carefully inspected before being reground.

ECONOMY
QUALITY
INTELLIGENT SERVICE

Distributors of Hess-Bright New Bearings.
All types of Ball Bearings.

For Quickest Service Write or See our Nearest Branch

ST. LOUIS, 2831 Locust Street
MINNEAPOLIS, 926 Marquette Avenue
CLEVELAND, 1836 Euclid Avenue
ATLANTA, 323 Peachtree Street
PORTLAND, 325 Davis Street
LOS ANGELES, 325 West Pico Street
SAN FRANCISCO, 715 Turk Street
DETROIT, 790 Woodward Avenue
NEW YORK, 1790 Broadway
BOSTON, 93 Massachusetts Avenue
PHILADELPHIA, 934 No. Broad Street

Ahlberg Bearing Company
2636 Michigan Avenue Chicago, Illinois

DEFENDER AUTO LOCK "The Automobile Watch-dog"

SELLS TO OWNERS

Because Thieves Won't Try to Beat It

$3.50 is just the right price for a Lock for Ford cars—and DEFENDER Locks sell fast. Double lock the car. Already making good in service. One has never been beat.

Price only $3.50

—with liberal dealer discounts that pay. *Write or wire for details.*

DEFENDER AUTO LOCK COMPANY
5th Floor Marquette Bldg. Detroit

WIRE WHEELS

for SAFETY and STRENGTH
QUICK CHANGE
BEAUTY and COMFORT

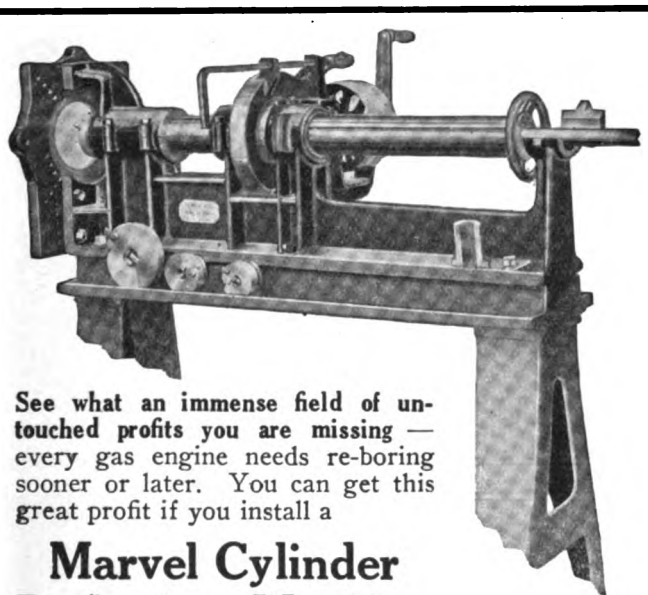
WIRE WHEEL CORPORATION of AMERICA
(Successors to Houk Manufacturing Co.)
Factories: BUFFALO, N. Y., and SPRINGFIELD, MASS.
Direct Factory Branches and Service Stations:
New York, 835 Eleventh Ave. at 57th St. *Chicago*, 23d & Indiana Ave. *Philadelphia*, 328 N. Broad St.
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The manufacturer of a well-known automobile accessory will have several desirable District Agencies available very soon. Established business with jobbers and garages awaits a few high-grade men with moderate capital and the ability to create and maintain aggressive selling organizations. Possible curtailment in automobile production means greater demand than ever. Our National advertising and liberal dealer helps will get this business for you.

Address Box 12, Accessory Manufacturer, care of Motor World, Mallers Building, Chicago, Ill., for particulars.



See what an immense field of untouched profits you are missing — every gas engine needs re-boring sooner or later. You can get this great profit if you install a

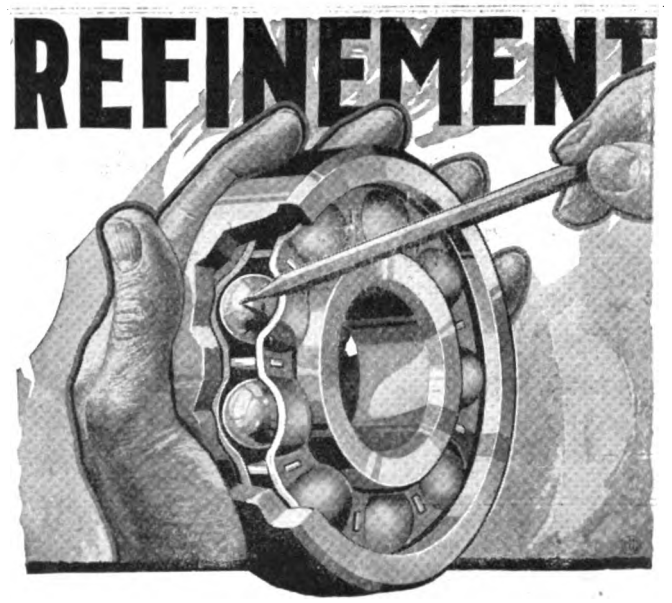
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The only device that will do the work and bring you the profit—no other like it for *speed, accuracy, simplicity* of *operation* and *general efficiency.*

Will re-bore any block, 2½" to 8" in diameter, perfectly round and without taper, accurate to less than .001 of an inch.

Write for particulars and about the accurate fitting pistons we supply.

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THE quality refinements of New Departure Ball Bearings are years in advance of most American products.

Added to American genius for achievement, New Departure methods have sensed the advantages of profound study of detail.

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NEW DEPARTURE BALL BEARINGS

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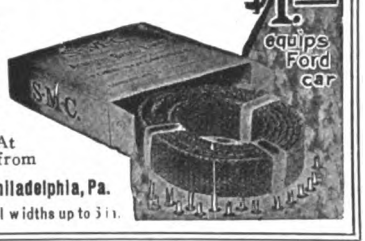
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$1.50 equips Ford car



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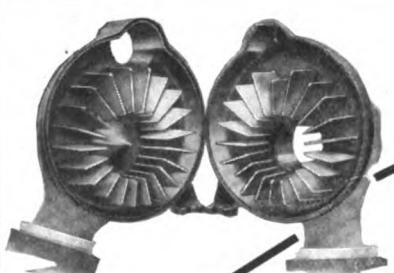
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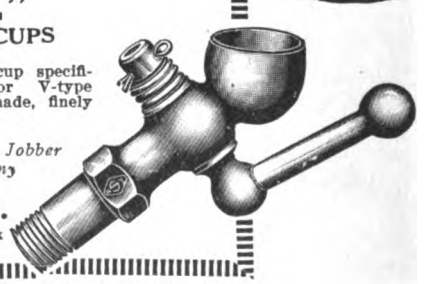
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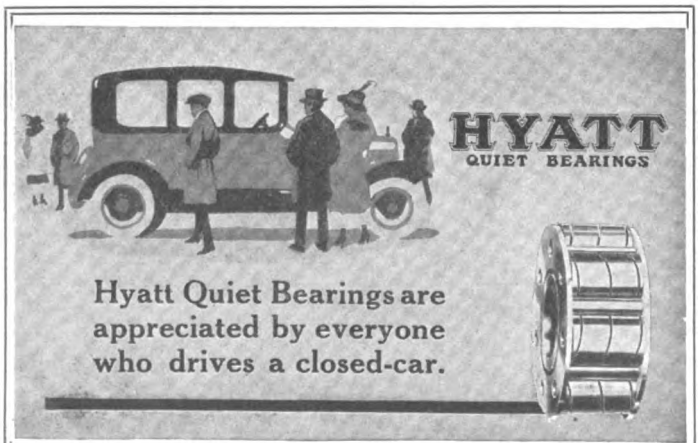
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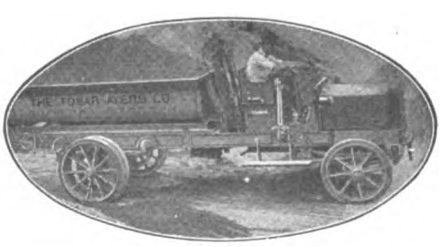
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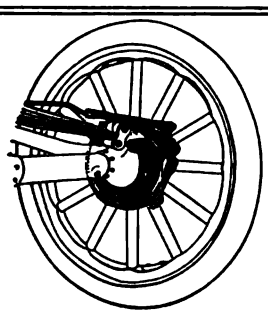
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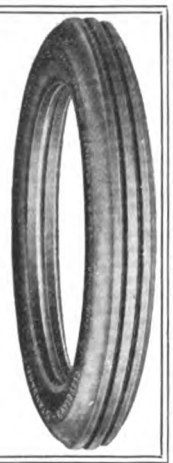
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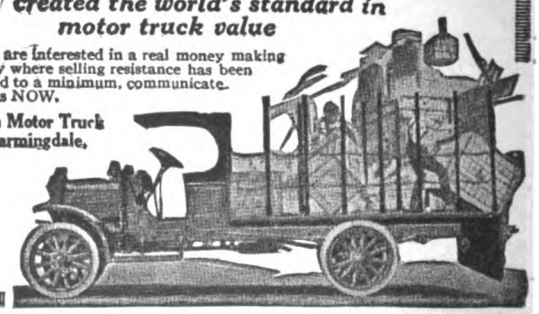
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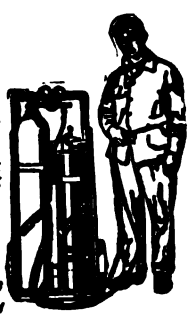
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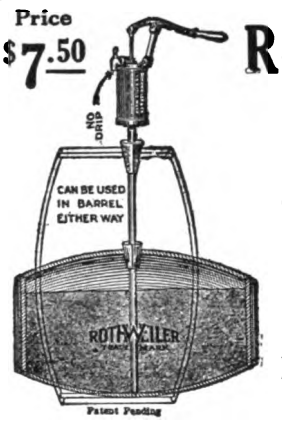
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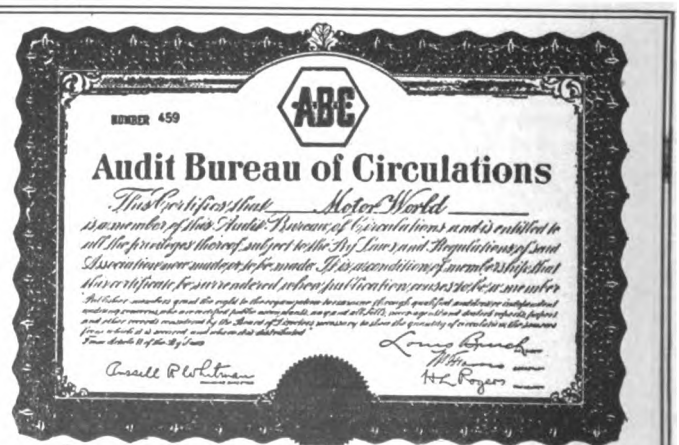
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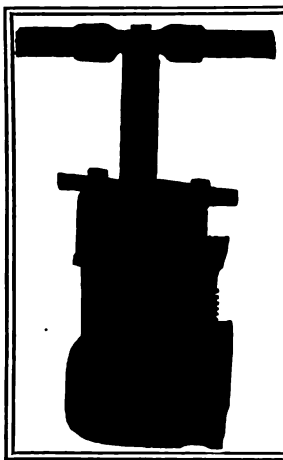
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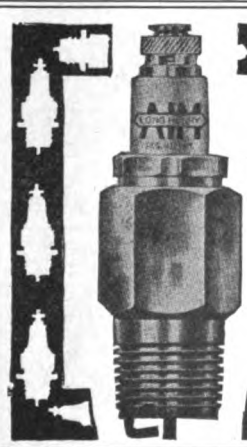
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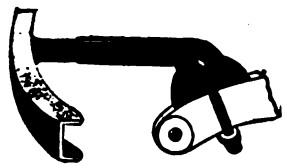
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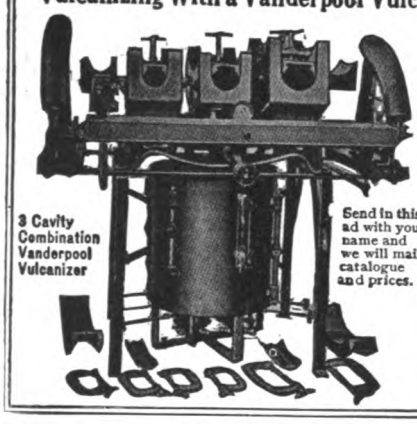
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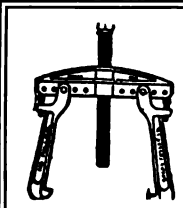
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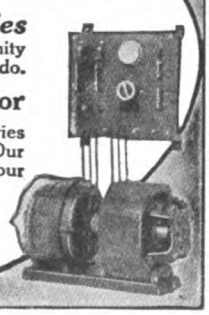


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ALL STANDARD MAKES

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28 x 3	$2.75	36 x 4	$7.50
30 x 3	2.85	33 x 4½	8.00
30 x 3½	3.95	34 x 4½	8.00
32 x 3½	5.00	35 x 4½	8.00
34 x 3½	6.00	36 x 4½	8.00
31 x 4	5.00	37 x 4½	8.50
32 x 4	5.50	35 x 5	9.00
33 x 4	6.50	36 x 5	9.00
34 x 4	6.00	37 x 5	9.00
35 x 4	7.00	38 x 5½	12.50

10% extra for Non-Skid. C. O. D. orders shipped same day. 5% off when cash accompanies order. Goods shipped C. O. D. upon receipt of 20% of order.

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21-A Cambria St. Boston, Mass.

Popular Priced Tires

VARIOUS MAKES

Factory Firsts and Seconds

Size	Plain	Non-Skid	Size	Plain	Non-Skid
28x3	$6.45	$7.45	35x4	$13.95	$15.45
30x3	6.95	7.95	36x4	14.95	16.00
30x3½	8.45	9.45	34x4½	17.45	19.45
32x3½	9.45	10.40	35x4½	17.95	19.95
31x4	11.95	13.10	36x4½	18.45	20.45
32x4	12.45	13.45	37x4	18.95	20.95
33x4	12.95	14.00	35x5	19.95	22.45
34x4	13.45	14.45	37x5	20.95	23.75

We Pay Express Charges

Special Proposition to Good Live Dealers

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We are handling only standard make tires that have been guaranteed for 3500 to 5000 miles. Some of them do not need to be repaired, others do, which we renovate thoroughly and strengthen every weak spot. Satisfaction guaranteed.

	Used Tire		Used Tire
30x3	$3.00	35x4	$7.00
30x3½	4.00	36x4	7.00
32x3½	4.50	34x4½	7.50
31x4	5.00	35x4½	7.50
32x4	5.50	36x4½	7.00
34x3½	6.00	37x4½	8.00
33x4	6.00	35x5	8.00
34x4	6.00	36x5	8.00
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This Business Will Pay You 1200% Profit

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Many motor folks have their initials on their cars—and many more would like to, if it were not for the expense of a hand-lettered job and the time-consuming bother of it.

So we did the obviously *sensible* thing and evolved a method of lettering that would enable you to put a handsome set of initials on both sides of any car in ten or fifteen minutes—and would be

Cheaper and better than hand lettering

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Your investment is trifling

For a few dollars you can lay in a stock of initials sufficient for a good many jobs. And we fill orders so quickly that it's entirely unnecessary for you to overstock yourself. The profit on half a dozen spark plugs would buy your first outfit.

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The usual charge made by dealers for initialing both sides of a car with these monograms is $1.50. The cost to you can be brought as low as *a penny apiece* in quantity orders—giving you a profit such as no other part of your business is capable of yielding.

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With initial order amounting to $5.00 or more, you will receive *free* the necessary tools, a handsome display board with full-sized monograms in gold and colors, and a quantity of catalogs to hand to your customers—showing all styles and designs for their selection—and liberal amount of advertising matter with all subsequent orders.

Write for Samples and Prices

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High Grade Tires and Tubes

5000 MILE SECONDS

at the following prices without a guarantee. However, if you want a GUARANTEE FOR 3,500 MILES, add 20 per cent on these prices.

BEST VALUES ON THE MARKET—A Trial Order Will Convince You

Size	Plain	Tubes	Size	Plain	Tubes	Size	Plain	Tubes
28x3	$7.00	$2.00	32x4	$14.00	$3.35	35x4½	$21.45	$4.20
30x3	7.00	2.00	33x4	14.50	3.50	36x4½	22.00	4.30
30x3½	8.75	2.30	34x4	15.00	3.65	37x4½	22.80	4.60
32x3½	10.50	2.45	35x4	15.85	3.75	35x5	23.10	4.65
34x3½	11.50	2.70	36x4	16.20	3.85	36x5	23.95	4.75
31x4	13.75	3.20	34x4½	20.35	4.15	37x5	24.20	4.95

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We make a specialty of, and have the largest stock of SECOND HAND electric MOTORS and GENERATORS in America, and buy and sell, rent, exchange and repair electrical machinery of all kinds.
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Shaper, friction, 20 in. Hendey.
Turret lathe, 21 in. Gisholt.
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Garages, Repair and Machine Shops

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THE LATHE—DRILLS—MILLING MACHINE—in fact, every wheel in your entire shop can be kept busy.

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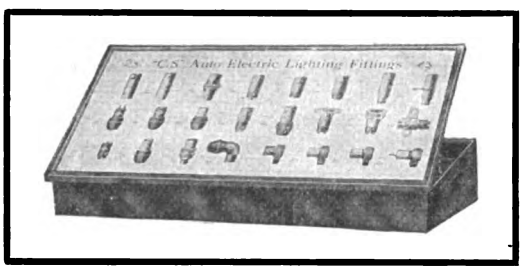
Why not? The motor car industry is overloaded with manufacturing work, including Government work, such as aeroplane, Liberty Motor, trucks and tractors. The opportunity is an exceptional one—further, every wheel should be kept moving this winter to the advantage of the country, and your profits.

Motor World Contract Work Department

239 West 39th Street NEW YORK

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That's what a

CULVER-STEARNS DISPLAY CABINET

really amounts to

Made of attractive art metal, glass topped, showing illustrations in exact size of fittings and prevailing prices. Cabinet divided to hold complete standard assortment of 140 fittings. You can hang it up or set it on a desk or counter and lock it.

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Manufacturers of Electric Lighting Specialties for Automobiles

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HOOK THEM UP WITH

Universal Battery Clips

Don't stop to clean dirty terminals—the teeth bite through the corrosion and make a good contact



TO CHARGE BATTERIES IN SERIES:

¶ Provide a number of pieces of flexible cord or cable of suitable size and length, and equip with Clips at each end. Use these jumpers to connect the batteries by snapping the Clips over the lugs.

¶ They enable you to charge auto batteries without disconnecting them from the car. Simply fit your connecting cords with these clips and snap them over the battery terminals.

¶ Made of steel—lead plated—may be used over and over again. **No. 21-A—1½" spread of jaws.** Sample mailed, postpaid, for 15c. in stamps.

Single Lots, Each 20c. Box of 10, Each 15c
Standard Package of 100, Each 12 1-2c

R. S. MUELLER & CO.
430 High Ave. Cleveland, O.





The Famous 43

There are just that number of steady selling, profit-making items in our catalog of

WONDER WORKER
Auto Specialties

Send for this catalog today. Investigate the line. There's push behind it. A few items:

Wonder Worker Radiator Cement: Repairs leaks 15 minutes without removing radiator. No tools or solder required.

Wonder Worker Rim-Kote. Prevents tire and shoe from sticking to rim. A graphited, quick-drying paint for coating inside rims, demountable or clincher.

Wonder Worker Self-Curing Mohair Top Patches. Quickly and permanently repairs holes, leaks and rips in mohair tops. Absolutely waterproof.

These are a few of the 43. They all do what they say they do and do it well.

Write for our catalog now.

The Hall-Thompson Co.
Manufacturing Chemists
Hartford, Connecticut, U. S. A.

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STEPHENS
Salient Six

Instant Responsiveness

AS instant in its responsiveness to the driver as the polo pony is to its rider. At a touch of the accelerator the Stephens Salient Six leaps forward with ramming power or its speed increases gently at the will of the driver. An emergency push on its brakes brings it to a sudden stop, or light pressure on the pedal reduces its speed with gliding smoothness.

Such flexibility is possible only in a car with the scientific engineering balance of the Stephens Salient Six, possessor of the perfected overhead-valve engine which burns ALL the gasoline.

Three-Passenger Roadster	$1485
Four-Passenger Touring	$1550
Five-Passenger Touring	$1485
Five-Passenger Victoria	$1660
Five-Passenger Touring Sedan	$1985

Prices F. O. B. Factory

See Us at the Chicago Show, Space B-5 Armory

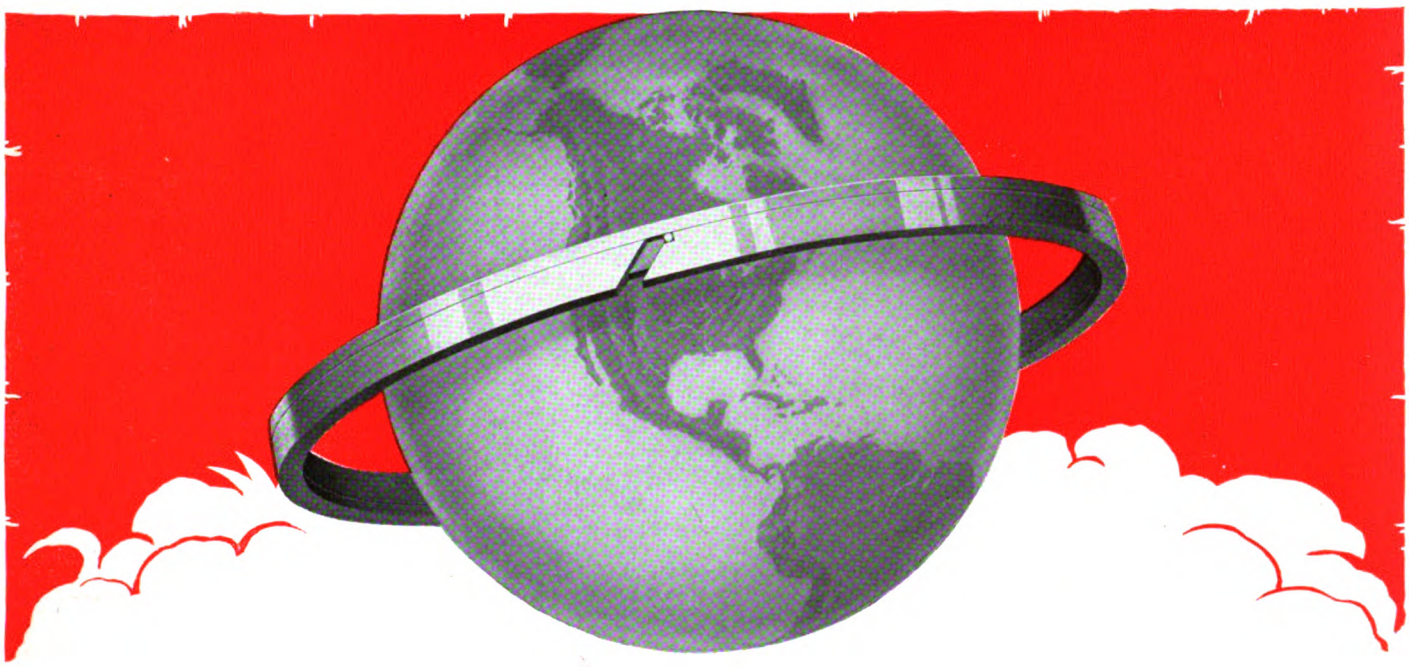
Stephens Motor Branch
of Moline Plow Co., Moline, Illinois
Factory: Freeport, Illinois

Dealers: The Stephens Salient Six sells itself on demonstration. We have a model for every use. Investigate our proposition.



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Seven years of successful performance records have established the leadership of McQuay-Norris Leak-Roof Piston Rings in the field of power production. Seven years of steadily growing prestige founded upon what they've actually *done* in increasing engine efficiency and reducing operating costs.

Performance has proved the merit of the exclusive McQuay-Norris Leak-Roof design by which alone equality of ring tension (the secret of maximum compression) is possible. Performance has demonstrated the enduring quality of McQuay-Norris Leak-Roof material—the wonderfully accurate workmanship that guarantees perfect fit.

McQuay-Norris have led the way again by perfecting the McQuay-Norris Superoyl Ring for engines that are oil pumpers. Scientifically designed by our engineers after a careful study of oil conditions in modern motors. Tested and proved efficient in controlling excess oil, thus keeping cylinders and spark plugs clean, eliminating smoky exhausts and increasing oil mileage. McQuay-Norris Superoyl Rings are used in cars that pump oil—one in the top groove of each piston with McQuay-Norris Leak-Roof equipment in the lower grooves to insure maximum compression, power and fuel economy.

McQuay-Norris leadership is once more expressed in the wide range of sizes in which McQuay-Norris Leak-Roof and Superoyl Rings are made and their distribution everywhere to fill the power needs of every community immediately. Over 300 jobbing and supply houses carry complete service stocks. Any unusual size or over-size rings can be obtained from our factory stock, where they are always on hand.

Build up your piston ring business on this assured leadership. It will simplify your service problems and make your service more prompt, satisfactory and profitable.

Send For Free Booklet

"To Have and to Hold Power"—a simple but valuable little treatise on piston ring practice. Every dealer, garage and repair man should read it. Write Dep't. K.

McQUAY-NORRIS LEAK-PROOF PISTON RINGS

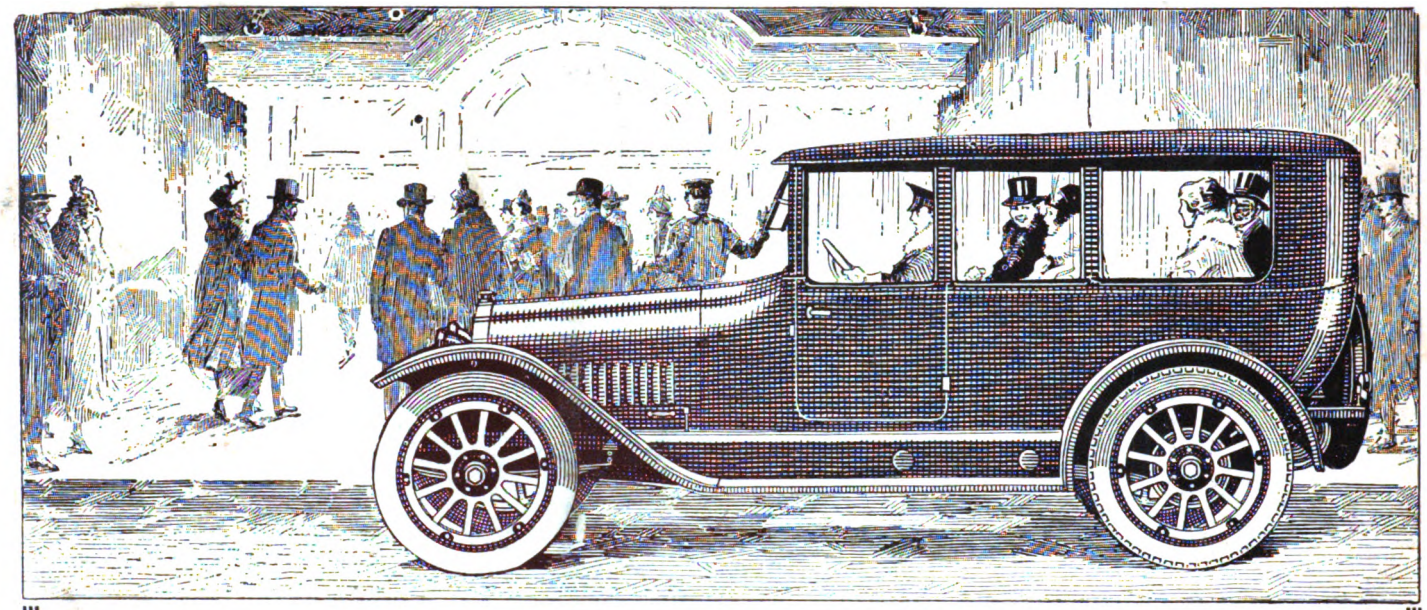
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Those 19 Styles

THINK what it means to find the car you want, built in two sizes, at two basic prices, and with 19 styles of bodies.

That is what men find in Mitchells. The man who wants a fine car can find just what he wants here.

Methods Which All Respect

Many Mitchell distinctions are due to factory efficiency. We build the complete car — chassis and body — in an ideal plant.

This entire plant was built and equipped under famous efficiency experts. Every machine, every method is adapted to build this one type economically.

Thus the Mitchell has come to offer greater value than any other car in its class.

Both sizes of Mitchells undersell other cars of like size, class and power.

They are built to unusual standards. They have oversize parts, large margins of safety, a wealth of Chrome-Vanadium steel. They have shock-absorbing rear springs which have never yet been broken.

They have many wanted features which are rarely found in cars. Things like a power tire pump, a dashboard engine primer, a ball-bearing steering gear, reversible headlights.

They have many touches which buyers appreciate — like handles for entering, a light in the tonneau, a locked compartment, a tool box under hood.

They have enduring finish, luxurious upholstery. All we save by our own body building is spent on extra luxury and beauty.

This Mitchell idea of making every penny count will appeal to you when you see the results. It has given the Mitchell a dominant place. Every year it brings Mitchells a new prestige.

Men interested in fine cars, as dealers or buyers, should know this new Mitchell line.

Two Sizes

Mitchell

Sixes

$1525 MITCHELL C-42

—a roomy 7-passenger Six, with 127-inch wheelbase and a highly developed 48-horsepower motor.

Three-Passenger Roadster, $1490
Club Roadster, $1560. Sedan, $2275
Cabriolet, $1960
Coupe, $2135 Club Sedan, $2185
Four-Passenger Surrey, $1675
Also Town Car and Limousine

$1250 MITCHELL D-40

—a 2 or 5-passenger Six on similar lines, with 120-inch wheelbase and a 40-horsepower motor.

Club Roadster, $1280
Sedan, $1950 Coupe, $1850

All prices f. o. b. Racine

All prices subject to change without notice.

MITCHELL MOTORS COMPANY, Inc., Racine, Wis., U. S. A.

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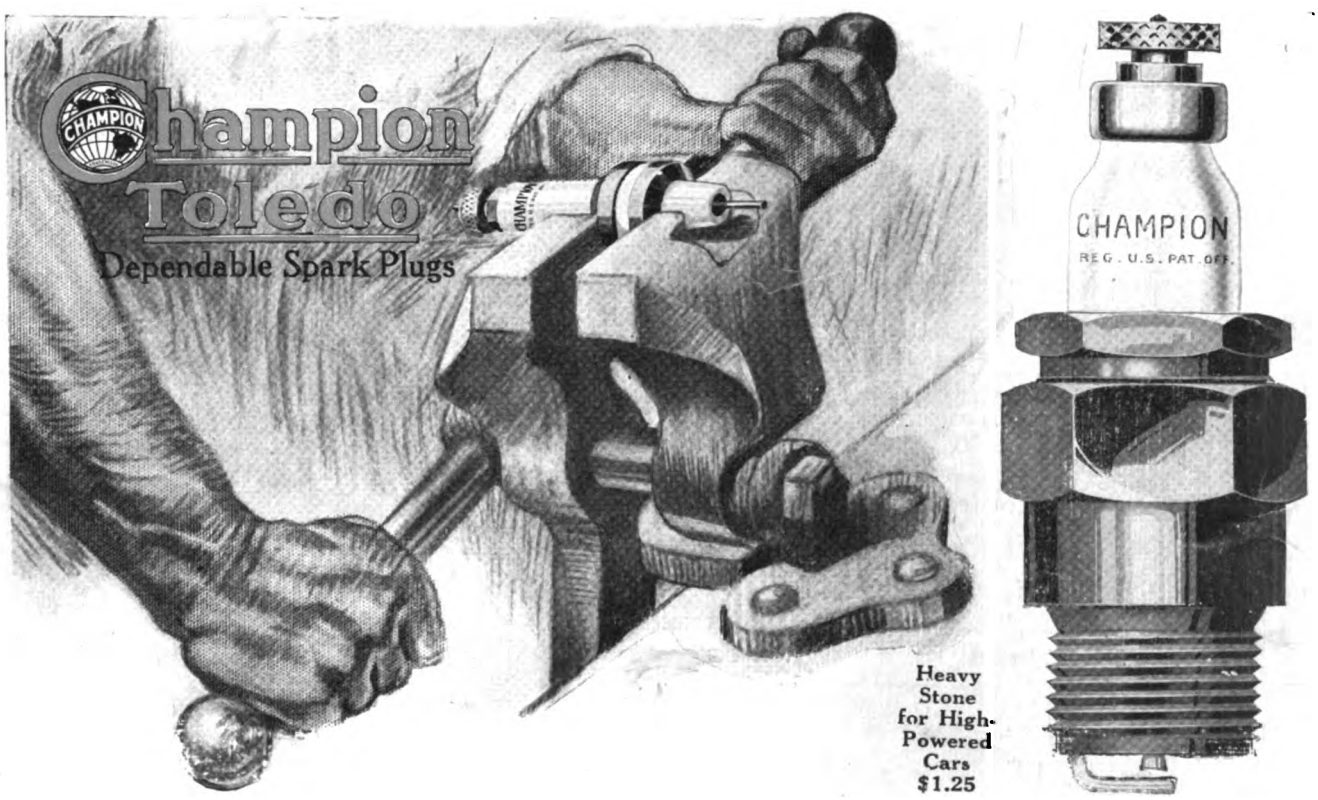
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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 4

New York, January 23, 1918

Ten cents a cop
Two dollars a yea



IF YOU put your spark plugs in a vise and exerted all your strength to subject them to the greatest possible pressure, you would expect the porcelain to crumble.

Yet that's virtually what they must stand in your motor.

As you get under way, the explosions in your cylinders become so rapid that the force they exert is practically continuous.

In Champion-Toledo Dependable Spark Plugs the shoulders of the porcelain insulators are cushioned against this tremendous pressure.

The two patented copper gaskets that protect the porcelain where the pressure comes are lined with asbestos so that the metal cannot touch the porcelain.

That's one reason why Champions are so much more durable and dependable than ordinary spark plugs.

Sell the car owner the Champion-Toledo plug designed to serve his kind of motor (your Champion chart shows which one) and you have assured your customer maximum efficiency and durability.

Keep your Champion stock complete—it means biggest possible volume of spark plug sales, quick turnover, maximum profits.

Champion Spark Plug Company, Toledo, Ohio

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Advertisers' Index—Next to Last Page

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Do You Know *Why*

UTILITY *Protected Foot-Rail* HEATER

Heater Core Gets Hot Enough to Burn, or It Would Not Heat Your Car

Protector Shield Stays Cool Enough to Touch So It Cannot Burn Shoes or Robes.

Really Heats Your Cars?

Because like the heating plant in an office building or a home its specifications were first calculated mathematically by an expert radiation engineer.

The exact radiation surface necessary for a heater of the UTILITY type to heat the largest automobile in coldest winter weather was known before the first UTILITY Heater was built.

That is why the UTILITY Protected Foot-Rail Heater really heats your cars. That is why it is seldom necessary to use its maximum heat to keep cars warm. A convenient regulating valve is furnished, that the temperature in any car, UTILITY equipped, may always conform to the passengers' requirements.

UTILITY Protected Heaters have been installed in thousands of cars this winter. They dominate Automobile Row.



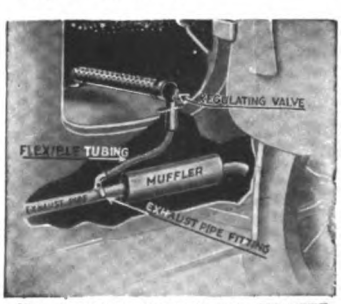
Watch for the Gold Plated UTILITY Protected Heater in the Anderson Six at the Shows.

Write for unusually attractive literature and complete details.

Leading Jobbers and Dealers Recommend UTILITY Protected Heaters

Hill Pump Valve Co.
Archer Ave. & Canal St., Chicago
Eastern Sales Office: 149 Church Street New York City

Manufacturers of Famous UTILITY Auto Specialties



How UTILITY PROTECTED HEATER Is Attached to the Exhaust

Price $15

UTILITY Jr. Protected Heater for Fords **$7.50**
UTILITY Front Seat Heater, for Maxwells, Chevrolets, Fords and Front Seat Installations in all other cars **$10**
Prices west of Rockies:
UTILITY Protected Heater.. **$16.00**
UTILITY Front Seat Heater. **10.75**
UTILITY Jr. Heater..... **8.00**

Keep the Driver Warm

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Premier

The Aluminum Six with Magnetic Gear Shift

To the Motor Car Distributor:

You know that the demand for munitions will mean a curtailment of passenger car production for the duration of the war.

You know that the demand for passenger cars is going to exceed the supply.

Are you protecting yourself by adding to the line or lines you now handle—so that you may increase your own sources of delivery?

No factory can guarantee deliveries for very far ahead, because the entire industry stands ready to turn its facilities over to the Government as needed.

The wise distributor will do his best to assure himself of deliveries and will not place all his eggs in one basket

The following distributing contracts for Premier have been closed—you will recognize many of these nationally known distributors:

Atlanta, Ga.	Randall Motors Company
Butte, Montana	Automobile Service Company
Baltimore, Md.	Beam Motor Car Company
Boston, Mass.	Frank L. Brown, Inc.
Buffalo, N. Y.	Mason B. Hatch, Inc.
Binghamton, N. Y.	B. O. Moffit's Sons
Brattleboro, Vt.	Vermont Auto Sales Corporation
Charlotte, N. C.	Charlotte Motor Sales Company
Chicago, Ills.	James Levy Motors Company
Chattanooga, Tenn.	Mutual Auto Company
Cleveland, Ohio	Ohio Auto Sales Company
Cincinnati, Ohio	The Chas. Schiear Motor Car Co.
Des Moines, Iowa	Auburn Motor Company
Dallas, Tex.	Federal Motor Company
Denver, Colorado	E. J. Johnson
Fort Dodge, Iowa	Fort Dodge Auto Company
Hartford, Conn.	Acme Motor Sales Company
Harrisburg, Penna.	I. W. Dill
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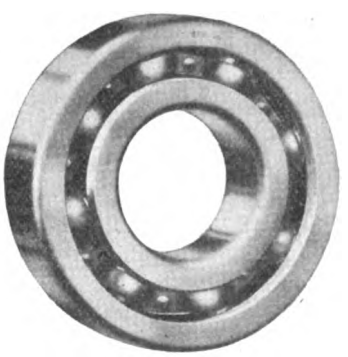
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For DEALERS, JOBBERS AND GARAGEMEN

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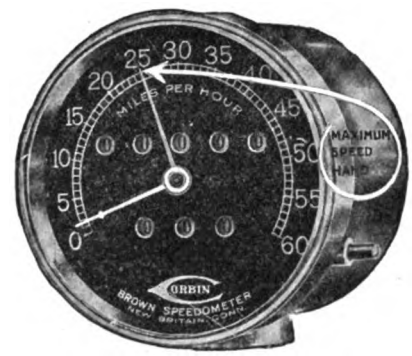
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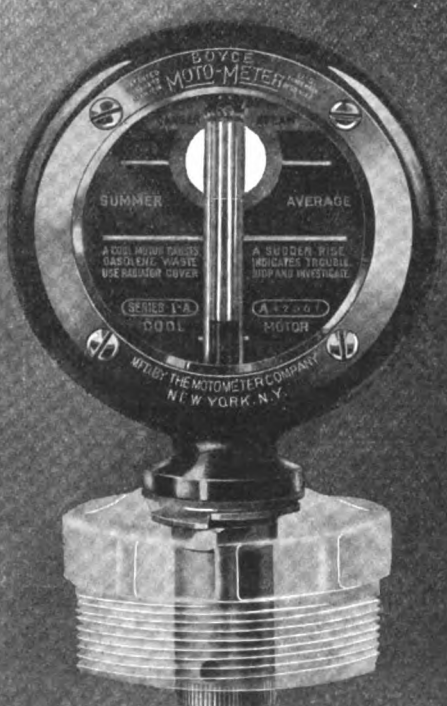
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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV New York, U. S. A., Wednesday, January 23, 1918 No. 4

Transportation

Says Chalmers

Is Country's Real Need

We Must Make More Cars and Sell More, He Tells Cleveland Dealer Convention—We Cannot Carry on a Protracted War on a Policy of Contraction—There Are No "Non-Essentials"

CLEVELAND, Jan. 21.—Hugh Chalmers, the motor car industry's champion in this great crisis to-day, gave a message to all the automobile dealers of America. He decried the down-in-the-mouth attitude of the faint-hearted, urged strong men to shake off their sackcloth and ashes and rise up and be fighters of industry for the salvation of their country.

His message was delivered to 400 Ohio dealers in the ballroom of the Hollenden Hotel, at a rally luncheon given to the trade of the State by the Cleveland dealers. Secretary Fred H. Caley had sent out nearly 4000 invitations to dealers to hear Chalmers. One hundred and fifty men came from Akron alone.

Chalmers condemned strongly the dealers who welch and wilt and believe their business has no right to exist. He showed how those dependent upon them would suffer if the dealers—who should be leaders—lay down. He said we could not expect business as usual, but that we would have good business, and that if we didn't have good business we would lose the war.

He pointed out the enormous transportation necessity that the motor car is, and how great a servant of the country is the man who sells cars.

He urged the dealers to take a greater interest in their country's welfare, to criticise constructively when they could, and to obey orders when they are given.

Conscript All Men Under 50

Chalmers said he believed every man up to 50 years of age should be conscripted and placed in the National Army or the industrial army. He said no man should be permitted to shirk. He also said we might expect a shutdown for a week in railroad passenger traffic, and that while it would release engines to move freight it would also demonstrate what an essential the motor car is.

The policy of expansion and not of restriction was urged. A war of 4 or 5 years could be won no other way, he said. Car production will be less, he said, but probably not enough less to interfere with the 1918 sales demand.

The need to-day is for transportation, and not coal, he stated, and he urged that 100,000 *trucks be conscripted as a solution of the problem.* Dealers must work more intensively, he asserted; they must hold more meetings of their salesmen. They must dig harder into business and must throw their whole souls into their work, which is only the work of winning the war.

When Chalmers finished, the applause was long and loud. Men crowded around to shake his hand. After that he went to the Cleveland motor car show, which was packed with people, and all the afternoon was busy shaking the hands of men who had heard his address. He said:

"If we are the third largest industry in the country—and we are, by statistics—for heaven's sake let us act like it and not act as if we were down somewhere about the forty-ninth or fiftieth.

"In the first place, we, of course, are all Americans. *We must be.* We are all assembled under this one slogan, 'Win the war.' While we as business men would like to have business as usual, we are more interested in having democracy as usual after the war than we

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"The Automobile Industries Committee is the go-between to say to our government: 'We stand ready as patriotic business men to convert this industry as much as may be necessary to be of assistance to our government in its war program, but we want conversion and not destruction'"—

Hugh Chalmers.

are in having business as usual during the war.

"We cannot have business as usual during the war. We cannot have everything as we had it. There must be unusual conditions just like this order to close down for 5 days. We cannot have business as usual, but we do want business and industry as nearly as usual as we can have it and let the government have its war program 100 per cent.

"The war program of this country must come first, and after that we must have industry.

"*After three months of careful and intensive study I do not believe this country can carry on a protracted war on a policy of contraction.*

Must Have Policy of Expansion

"I believe it must be a policy of expansion. We must keep industry going. We must keep our business going, if we can, after the war needs are supplied.

"We are all under the same banner of 'Win the war.' We have an honest right to differ as to how it is best to win the war. We have a right to differ with those in authority, if we can point out constructive things that should be done to take the place of some of the things they propose.

"So, if we cannot have our business going as usual, then it is just as necessary—and all of you probably will agree—*it is just as necessary to make dollars as it is to make munitions to properly finance the future conduct of the war.*

"So, as I say, the Automobile Industries Committee has been appointed and is serving in Washington as the intermediary between the government and this vast industry employing nearly one million men and with the great capital that it has.

"We are the go-between to say to that government, *we stand ready as patriotic business men to convert this industry as much as may be necessary to be of assistance to our country in making its war program, but we want conversion and not destruction.* We want and are willing—while you dealers do not like to hear this and it is not going to come to pass—we want and are willing, and have said so repeatedly, that if this government needs it, it can have 100 per cent of the automobile productive capacity of this country, if it needs it, to win this war.

"They are not going to need 100 per cent of the automobile capacity. The automobile industry has already taken on a large number of war contracts, but I do not believe, gentlemen, for one moment that it is going to interfere with the production of automobiles; at least very much below the point of where the sales will be.

"I do not believe, as an automobile man, that we can have in this country during a period of 4 or 5 years' war 100 per cent of our biggest year in sales. I would not be telling the truth if I did not tell you that.

"With two or three million men, and probably five million men, on the other side, taken out of production, taken out of activity here and put 'over there,' I do not believe we can expect to pyramid this production year after year, as has been done, during the period of this war.

"We all want to make our business go, keep it alive, and we want to keep going as much as possible, but remember that this is not a money-making period necessarily, but *it is a history-making epoch that we are in.*

No One Should Be Disgruntled

"So I have no patience with the man who is disgruntled, who is dissatisfied, every time that something happens that unsettles his business.

"As far as official Washington is concerned, there is no disposition on the part of any official that I know anything about, or that our committee has been dealing with, to deliberately injure the automobile business or any other business. Their motives are just as high as yours and mine. The only difference between us is method, if you please. It is method.

"Now, then, we are down there to represent the industry for the purpose of convincing those gentlemen that they do not want unnecessarily to curtail this industry, the third largest, or any other industry, and, as I say, I don't think it is going to be necessary, because they understand themselves now that the automobile business is somewhat of a half public business.

"You men as dealers, and we as manufacturers, have gotten a lot of publicity in the past for the automobile because—and that very publicity that you worked so hard for and got so much of in a time like this often works against us—there has been great exploitation of the great profits made in the automobile business.

"Those in the business know that that can be limited to 10 or 15 producers. Those enormous profits have not been made by the great bulk of the people in the business.

"*If there is any one word that ever has done great damage to the automobile business in the last five years, it is the word pleasure.* We are not making *pleasure* cars to-day. We are making *passenger* cars, and every dealer and everybody ought to realize that.

"We have suffered for our sins in the past in calling automobiles *pleasure* cars.

"In other words, gentlemen, there were some men in Washington who thought honestly of automobiles or *passenger* cars in terms of limousines. They thought they were all *pleasure* cars. They also thought in the terms of *joy-riders.* We had to convince them that all automobile men were not joy-riders any more than because you have a few people here in your city jail all of the people in Cleveland are just like them.

"So we must get this pleasure car business in its right place.

Transportation the Real Need

"What is the great crying need of this country to-day? As we point it out down there, the great need in this country to-day, the reasons for our five-day shutdown, is not scarcity of coal. It is not that. There is plenty of coal in the ground. There is plenty of coal mined. The mines only work two or three days a week now because they cannot haul it. *It is transportation.*

"Now, gentlemen, our industry is just as much a part of the transportation system in this country as our railroads and steamships and trolley cars. The automobile business is just like one great big huge power plant divided up into individual units for the individual use of the people in taking them around. What we must do is to make the people realize that. It is not a pleasure car.

"The problem of transportation, perhaps, is one which will always be with us until we get our railroads reorganized, and we are paying now in this period of congestion for the first of the sins of the last 10 or 15 years in trying to run these railroads too much ourselves and to keep from them revenue which should have been furnished for the development of their roads.

"I do not absolve the railroad from all blame. Perhaps they were not properly managed in certain places.

"*But if there ever was a time when the automobile necessity is being decried or being depreciated it is the very time when we ought to rise to the occasion and say, 'Here is the third largest industry supplementing the railroads which*

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have practically broken down in this country.'

"We have a great proposition in transportation, and you gentlemen want to look upon it in that light. Now, what made this automobile business great? In the past you fellows have patted yourselves on the back and said you were responsible for the tremendous business that was done.

"Do you know that this automobile demand has been in existence for 2000 years, because the only way a man had of increasing the speed of his personal transportation has been by the automobile, and the only way he had for 2000 years was the horse and his own legs.

"It was not until the advent of the automobile that a man could increase his own efficiency and thus increase the value of his time. There was a demand. Suddenly it became possible. It became commercialized. It became a commercial proposition where a man could buy it and use it, and get somewhere, and know he could come back in a short space of time.

"The result was we tried to fill a 2000-year demand in 10 years and therefore gradually the production increased and we got to patting ourselves on the back.

Must Have Individual Transportation

"There is just as much demand for improved individual transportation as there was for improved community transportation. Railroads are community transportation. Trolley cars, community transportation, steamship community transportation, *but the automobile is just as much a part of the individual system as they are of the community proposition.*

"So, let's get our business right in our own minds. You men have no right, if you are business men, and I am convinced that you are all good business men or you would not be here—if you have the pep you ought to have, if you are made by the stuff that I think you are—you have no right to become discouraged about the automobile passenger car business.

"As an individual if I were selling cars to-day and a man said to me, 'I don't want to buy a car now because it is war time; I want to wait until later,' why, I would tell him that that is the very reason he needs one because now you have got to be 100 per cent efficient; you must have the latest improved efficiency methods or you cannot be in the pink of condition. That is the very reason he should buy a car.

Leaders Must Be Optimistic

"Then, another thing that we must all get into this spirit of this proposition: If you men feel that your business is not going to be right, if you feel you cannot sell cars, well, then, God help the men under you *because if you, the heads of businesses, feel that way, then do not blame the fellows under you, especially the salesmen, because a good deal of this present automobile talk is psychology, notwithstanding some ridicule was* made of the word psychology in connection with the business depression in 1913 and 1914.

"If you have a salesman working for you and he calls on this man, and then a second man, and the third and fourth, and possibly the fifth man, and they all tell him that they do not believe they will buy a car just now, or they will keep their old ones for this season, why, then, he begins to believe them, because if you tell a man something often enough he will begin to believe it.

"That is psychology, and you fellows have got to keep your forces keyed up; you have got to keep your men in that condition, and the way to do that is *by having more meetings of your organization.*

"You ought to meet your men once a week during this period, get them together and help them answer these objections, give them the pep which you alone can give them, show them that you are a leader, that you are deserving of the name and you are not discouraged.

"On the other hand, there is going to be a demand for automobiles in this country. You can't stop it. There is going to be a great demand for automobiles.

Farmers Never So Rich

"The farmers were never so rich. Their business is going to be good. These billions of dollars which have been subscribed to the Liberty Loans have come from stockings, from socks and from safety vaults, and the government is spending them here and there and everywhere, and they are going into the arteries of trade. We cannot have business as usual, *but we will have good business.*

"We cannot have everything just as it was, but we are going to have good business in this country.

"And after all, gentlemen, there is no man in this country if he gives to the next five Liberty Bond subscriptions he is not going to give until it hurts. There are very few Americans to-day who are giving to either the Red Cross or buying Liberty Bonds until it hurts. They have always something in reserve. I will qualify that. Most of them have.

"So, gentlemen, it is our duty to subscribe to the Liberty Bond campaign. Every one of you has to go over the top more than 100 per cent. We have to give to the Red Cross. *It is better to contribute to the Red Cross now than to pay tribute to the Iron Cross later.*

"You gentlemen have to do all these things. Yes, and in addition, gentlemen, we have got to do business too. We must do business. We have got to buy and we have got to sell, and we have to give in trade, and we have got to be level-headed business men. We have got to do these things.

"You men in your towns, in the automobile industry, it occurs to me, can do a great deal to help this. You must get together in your organizations more, in your automobile organizations.

"Instead of talking about the most beautiful lines or the most beautiful this, that or the other thing, *why don't you get together and pay for some copy of the right kind that will point out to the people what automobiles mean to them?*

"If your dealers in Akron, for example, got together and you had 25 of your leading doctors sign a statement that says that the automobile that they have been using for the last 8 years has quadrupled their efficiency and they now see 20 people a day where they used to see five—that is the kind of advertising the country needs to-day about the automobile business. We must make the people see what a wonderfully economic thing it is.

"Gentlemen, if the Congress of the United States should pass a law that after to-morrow no more automobiles would be allowed on the highways or the streets of the cities they would set the country back 50 years economically, and they would be sure then that we would lose the war from within and not from without.

Read This Argument, Men

"It is often said to appreciate what value a thing is to you, you must be put in the position of doing without it. Whenever a man comes and says to you that an automobile is a luxury, tell him as I told a man in Washington the other day, a high official: He said, 'Mr. Chalmers, I do not think automobiles are

"As an individual, if I were selling cars today and a man said to me: 'I don't want to buy a car now because it is war time; I want to wait until later', why, I should tell him, that that is the very reason he needs one now, because now he has got to be 100 per cent efficient"—

Hugh Chalmers.

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necessary; I believe they are non-essential at this time.'

"I said, 'You use one, don't you?'

"He said, 'Yes, I do.'

"I said, 'Well, now, suppose I came along to you and made you a proposition like this: I will take that car off your hands at what you paid for it if you will sign a contract with me that you will never ride in an automobile during the period of this war, would you do it?'

"'No,' he said, 'I have to have one.'

"'Yes, you have to have one, but you want to deny the other man in a similar position the privilege of getting one.'

"That was the situation. He had to have one and he did have one because he was going around the departments, and after all we are proud to talk as business men about this thing of efficiency, and we talk a great deal about it. What is it?

"After all, how did you make your money? You made it out of three things. You made it out of knowledge you have of the particular line you are in. Second, coupled to that, you make it out of your ability to use your knowledge, and the third is the time you have to apply to the other two. That is about all there is to it.

"If I can double your time, get you some place in 8 minutes where it used to take 28, I have made you three times more efficient. I have made it possible to use that ability and that knowledge three times as much as you otherwise would use it.

"So that is the idea of this thing. It is to get the right kind of publicity. Now, this is true. *Every man pays for the thing he needs whether he buys it or not.* If you need an overcoat you will pay for it whether you get it or not. You may pay for it in doctor bills; you may pay for it in a cold all winter. You may pay for it in crippled efficiency. You will pay for it. *You had better go down immediately and buy it, because you will pay for it in the end, anyway. If you* need an adding machine in your business and you do not buy it, you pay for it just the same.

You Pay for It Anyway

"The same thing is true of an automobile. If you need an automobile or a passenger car in your work, you pay for it whether you buy it or not. *You pay for it.* We want to get those thoughts across to the people. Instead of your salesmen being discouraged, they ought to feel encouraged.

"Now, then, as your chairman said, there is going to be more or less trouble. I tell you, gentlemen, I think the President of the United States should do to-morrow and not the day after to-morrow this:

"*He ought to do it to-morrow, he ought to conscript every man in the United States up to 50 years of age and make them all soldiers of Uncle Sam and then tell them whether they are to serve in the industrial army or in the national army in France.*

"There is going to be labor trouble, not union labor necessarily. It is non-union labor just as much. This is not a time when any man has a right to say he won't do this or that. If he does not want to work in a coal mine, if he does not want to work in an automobile shop, then let him go over to the trenches in France.

"We have got to get the spirit of this thing. We must get it, and I think we have it all over this country. I believe this 5-day shut down, if you please, had this one beneficial effect, it has waked up a lot of people in the Middle West and out West particularly who are not close to this thing.

"It has waked them up and made them realize we are at war with Germany. There is no use of our fooling ourselves.

"*I personally think you can look for an order from Washington restricting passenger traffic, and I would not be surprised if they shut down all passenger traffic in this country for one week, and I hope to God they do, because, gentlemen, if we could have a suspension of passenger traffic for one week, can you realize what an immense amount of freight could be moved by those engines?*

"However, I hope they will notify us in advance so that we can get to where we want to be and stay there. We would not necessarily stay there because we have automobiles and we can go up to 500 and 600 miles.

"But isn't it better to have those orders for one week's duration and put all of the locomotives into service toward lifting freight and untying this thing than to go along 5 or 6 months in this crippled condition?

"These are drastic things and these are drastic conditions.

Solving the Coal Problem

"Personally, if I had charge of the coal administration I would not have permitted it to come to this present condition, but that is not necessarily a reflection of the men in charge. I do not know all of the circumstances, but we know this, *that there is no possible excuse, gentlemen*—I am measuring my words and I know what I am talking about when I say this—*there is no possible excuse for a repetition of it because they told me in Washington at the Fuel Administration that it is estimated that we can take out* 600,000,000 *tons of coal a year for* 2000 *years and not use up our coal supply in this country.*

"Now, gentlemen, it cames down to this point then: It comes down to men. Men. Not even transportation. I would conscript every man up to 45 or 50, and here is where our great industry comes in.

"We should have dealt with this fuel crisis before this thing broke.

"I believe if they would commandeer 100,000 trucks in this country, which is possible, that they would go a long way toward solving this coal proposition—commandeer them. We are at war. We have a right to commandeer anything if this Government has the right—and thank God it has—it is not a right—it is a privilege, to send your boy and my boy over to France. Will any American say it hasn't the right to do with physical property what it pleases?

"The 100,000 trucks would help to do what this great industry is bidding for the chance to do. This industry gave this country Howard E. Coffin and Christian Girl. They have not gone down for the dollar, but because they have the spirit we all ought to feel this way.

Commandeer the Trucks

"Every man in this room who is in this automobile business must feel that he is doing his duty. We cannot all go to France because of the age limit and for other reasons. This war is not one-sided. It has to be divided about 75 to 80 per cent industrial and about 20 to 25 per cent actual fighting.

"The man who stays in his place here and remains sober, and does his daily work, with the God above looking on him, doing it conscientiously, is producing more than he ever produced before, is supporting every endeavor, is subscribing for Liberty Bonds, to the Red Cross, and all the others, is just as much a proper and a faithful citizen of this great Republic as if he put on a uniform and carried a gun in France.

"So let's do our duty. Let's not get down in the mouth about this automobile industry. Your duty is to sell cars. *Your duty is to keep supplying this demand for not a non-essential at all, but for an essential.*

"I do not believe there should be any such things as essentials and non-essentials.

"So we must go away with this spirit: DO NOT BE DOWNHEARTED WHEN YOU GO TO THE NEXT MAN AFTER THIS. DO NOT FEEL LIKE APOLOGIZING TO A MAN WHEN YOU APPROACH HIM TO SELL A CAR. APPROACH HIM AS YOU DID HERETOFORE BECAUSE YOU ARE RENDERING A REAL SERVICE IN DOING SO.

"Why, if all men had that attitude with reference to their business we could not win this war at all.

"And for God's sake, men of this country, do not talk about peace. We can have no peace with that bunch in Germany to-day. Did not Russia try it the last four weeks? What kind of a peace did they want to give them after all? Annexation of all the territory they had and a standing army to remain there indefinitely.

Forget About Peace

"No, gentlemen, leave the peace proposition to those who handle it and the President of the United States is certainly handling the diplomatic end of this business in an admirable way.

"Let's not talk peace. Let's go on, every man to his job, shoulder to shoulder. Let's forget peace, let's forget all strife among ourselves because we are fighting now so that the orator in 40 and 50 years from now can stand up and tell our children and their children the acts of heroism and the great sacrifices we made, as did our forefathers who went down in order to give this wonderful country we enjoy to-day.

"We won't get the benefit, but our

(*Continued on page* 39)

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Fuel Order Shuts Up Factories

Nearly Every Plant Closed, Though a Few Having Government Jobs Continue

DETROIT, Jan. 18—Like a bolt from the blue came the edict from Washington stating that factories must close down in order to conserve the fuel supply. The first effect on the manufacturers was astonishment in the fact that the fuel administration would consider going to such an extreme, but in every case statement was made that strict observance of the rule will be followed, providing the move seemed necessary and patriotic and authorized by the Government.

A meeting of the manufacturers was held in the Board of Commerce yesterday afternoon, and it was the opinion of the representatives that the newspaper report published was not authentic and hence should not be observed until confirmation was officially received from Washington. Such confirmation was received at midnight and to-day plants, with few exceptions, are closed down.

The edict will cause immediate loss of millions of dollars. Practically all the plants are equipped with sprinkling systems which are impossible to shut off. The amount of coal saved by dropping the heat to a temperature just above freezing is practically negligible, and in many instances the closing down of the factories will cause a greater increase instead of a decrease in the coal consumption.

Some Peculiar Examples

As an example of this is the case of the large wheel-making factories and wood-working plants. When in daily operation these plants are operated and heated from the burning of the wood waste resulting from the manufacture. One large plant of this nature will use three times as much coal closed down as it would when operating because of this, because when manufacturing stops the production of the wood waste stops and coal must be used to keep the water and steam pipes above freezing temperature.

Typical of many of the motor car plants is that of the Hupp Motor Car Co. For 15 minutes in the morning city power is used, and after that the power is derived from gasoline engines. Through the company's own generators an excess amount of power is developed, and every month the city power company owes the Hupp company for power turned back into their lines. In the Cadillac Motor Car Co. plant all of the engines being tested on dynamometers are developing useful power. Similarly throughout the industry, closing down will eliminate sources of power, wasting them rather than conserving them, and the entire burden will be thrown upon coal and the people.

In Detroit alone 225,000 people will be thrown out of work at a total cost of almost one million dollars per day in wages. Many of these are living a hand-to-mouth existence, buying Liberty Bonds and thrift stamps. Alvin McCauley at Packard states that this will be almost ruinous and does not see how the employees can weather the storm.

The Buick Motor Co. closed down its plant last Saturday on a coal conservation movement of its own. For some time past this company has been concentrating upon obtaining coal for the city and hoped that by closing down the situation might be relieved. Yesterday several departments were opened up for the simple purpose of removing the men from the streets and providing them with wages. With no money coming in, no coal in the homes, certainly the situation is very dangerous.

Overcoming the Handicap

The Reo Motor Car Co. is planning to run on a 10-hour-a-day basis instead of a 9-hour basis after the one-day-per-week shutdown period is reached; hence the total time of 50 working hours instead of 54 will be possible.

The above is only a tentative plan and may not possibly be followed.

With few exceptions the plants throughout the entire state are closed to-day. Among these are Ford, Dodge, Cadillac, Hudson, Paige, Chalmers, Maxwell and the Hupp. One exception is the plant of the Continental Motors Co., which is engaged in extensive work for the Signal Corps and the Quartermaster's department. Whether other plants engaged in similar work will operate in those departments is a question.

Though strongly opposed to the edict, because they do not see its possible effectiveness in relieving the situation, and because it is feared that the results will be greater than any possible benefit, the manufacturers feel that they should set an example of patriotism and are hence obeying the edict. The situation is deplorable and the remedy worse than the disease.

Plants like Packard, Ford, Cadillac, Fisher Body, General Aluminum & Brass, Detroit Copper & Brass Rolling Mills, and the American Car & Foundry Co. were included in the exemptions announced by the Fuel Administration in Washington late Friday. All of these companies have one or more departments on important war work and these departments alone are in operation to-day. There are others, however, doing war work which were still closed in all departments this morning. These included local plants working on parts for the Liberty trucks, such as Continental and Timken.

About 75 per cent of Detroit industries were shut down Friday, and on Saturday morning virtually 90 per cent of the city's industries adjusted themselves to the schedule imposed by the Fuel Administrator. In accordance with the protest meeting held at the Board of Commerce Thursday afternoon, about 40 shops, employing large numbers of men, went to work as usual Friday morning, but when an order was sent out by Governor Sleeper declaring that it was unpatriotic to disobey the edict and that the state would enforce it, these also fell in line.

The Willys-Overland factory at Toledo is closed except in the departments doing government work. The Elmira plant is running night and day, and the Elyria plant is also going ahead with its airplane work. The number of men laid off by the Willys-Overland Co. is 8000. The coal saving of this company amounts to about 200 tons a day.

Practically the same conditions apply to the Buick company in Flint, where all but the aircraft men are laid off, making a total of about 12,000 employees out of work for the 5-day period. This company uses normally 600 tons of coal a day, of which 42 per cent will be saved through closing. The general coal situation in Flint is probably as bad as it is anywhere in the country. There are 4000 families practically without coal, and there is no coal anywhere near the city and no cars en route. The schools have been closed for a week and the coal taken from the cellars and placed into the bins of private users. This company has voluntarily reduced its production by closing its plant over a week ago to conserve fuel to meet the serious situation obtaining in Flint.

Some Plants Start Again

The Ford Motor Co. started Monday operating in the departments where government work is under way, the most important of this being the department concerned with the manufacture of cylinders for the Liberty aircraft engines. This highly important work was closed down with the rest of the factory because the Ford company did not get its exemption order until late Friday night, when it was too late to get the force together to start work again Saturday.

(*Continued on page* 38)

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Car and Truck Drive-Aways Can Save the Country—II

Dealers Must Plan Now for Drive-Aways

SUPPOSE, as we said last week, that the railroads cannot transport motor cars and cannot transport motor trucks, then your big problem is to estimate what it is going to cost you not to do business. Here is a specific, workable plan to make you independent of the railroads. Read the story.

THE probability of having to drive away all motor cars and all motor trucks from the factories to dealers and distributers increases every day.

The order of the Fuel Administration shutting up all industries except those engaged in war activities and those on foods, etc., suggests what important measures may be looked for from day to day. Last week over 300 ships in New York harbor, sailing under the United States and Allies' flags, were held here for want of coal. This is an example of how badly our national transportation system has broken down, and how essential it is for every citizen to do not his bit, but his *all*, in this crisis.

A message this week direct from France tells what unusual efforts she is making to help out her railroads in the present war. Starting a few weeks ago, many of the French army trucks are being used in commercial work as well. It has been worked out this way:

A convoy of army trucks moving from seaport up to the front is laden with army supplies, men, and everything else needed. These trucks carry men back to Paris, but from Paris to the seaports, or to other cities in the direction of seaports, they carry loads of merchandise which otherwise would be sent by train or in other ways.

How Our Allies Conserve Energy

For example, there is the city of Lyons, which is 300 miles from Paris. The movement of commercial merchandise not intended for the army is carried by convoys of motor trucks for this distance. *In a word, France is not allowing one of her army trucks to make an idle trip where it is possible to use that truck to carry merchandise.*

That is the rule of war, and if it is necessary to take such action in times of war in France it is still more necessary that we, as their ally, take such action at home. In France to-day it is too inefficient to run a single truck on the roads without it carrying its full load or some form of useful load.

Some of you dealers may say that it is too costly to deliver by motor truck, or that it is too costly to drive cars or trucks overland from the factory to the dealer. We suggest that you get rid of such misconceptions and get into the new war regime atmosphere.

Do not forget that to-day you should think of the cost of NOT DOING BUSINESS just as much and perhaps a little more than you have been thinking of the cost of DOING business. Get the idea of looking at business, in these most critical days of the war, in this new aspect, namely, the cost of not doing business as well as the cost of doing it.

In peace times we never think of the cost of not doing business, but the coal administration order last week gave us a little taste of what it is costing not to do business. In many places the cost to the community for shutting down plants due to a shortage of coal is making coal cost $225 per ton. That is one example of the cost of not doing business. There are places in the country to-day where it is costing near $300 per ton for coal due to not doing business.

Estimate Cost of NOT Doing Business

Supposing, as we stated last week, that the railroads cannot transport motor cars and cannot transport motor trucks, then your big problem is that of correctly estimating what it is going to cost you not to do business.

You have then two chances before you—that of doing without cars or trucks, or driving them from the factory to your place of business at a higher cost.

If the buyer objects, you can pass the business argument along to him. Let him ask himself what it is going to cost him to do business without the motor truck that he should buy from you. Ask him to answer if it is cheaper for him not to buy a truck that has been driven overland from the factory, or to gladly take such a truck.

Put the question up to him as to whether he can afford not to do business at all or to pay the war price of doing business.

There is little doubt but that every business man will take the same view of the matter, and if he has not vision to see the question that way then it is up to the dealer or the distributer to put the facts in the case before such a customer so that he sees the truth.

Last week we spoke of the desirability and the necessity of dealers laying their plans at this time for the complete necessary organization for driving away all of the cars and trucks required during the coming season. There are many more possible suggestions that might be considered by such an organization.

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This question is one that calls for a national dealers' organization that could be the directing brains in the whole movement. It also calls for live dealers' organizations in different cities. It also calls for community dealer effort in certain sections of the country, such as New England, the Twin City area, the Southeast, etc.

The working out of the plans for a complete driveway will call for co-operation among rival factories. It will call for co-operation among dealers who have been rivals, and have not co-operated with each other as they should have. It will call for the breaking down of these old pre-war prejudices. It will call for co-operation with your keenest business rival, the man whom in the past you avoided doing business with, which is now working to your own detriment as well as to his.

Consider briefly a few examples of what co-operation might do very efficiently in a great driveway system such as will certainly be necessary during the coming season.

Suggestion 1. It will be necessary for drivers to handle cars of different makes under certain conditions. For example, Overland drivers leaving Toledo for Milwaukee, or the Twin Cities, might to advantage drive automobiles from Nash or Mitchell factories when they are coming back East. This would let the driver be driving both West and East, instead of his driving West and making the return trip on the train. There is no reason why this interchange of drivers could not be worked out most effectively. Franklin drivers delivering cars to St. Louis should be utilized to bring back Moon or Dorris cars. Indianapolis drivers could drive cars made in Indianapolis to Cleveland, Toledo, Detroit, Flint, and that entire zone, and drive back cars made in the Detroit zone to Indianapolis, or cars that are to be forwarded to the Southeastern section.

All Drivers Might Be Pooled

Suggestion 2. It looks as if a pooling of drivers should be desirable. It was necessary for our railroads to pool coal cars last summer, and had it not been for this action there would be a much greater shortage of coal than exists to-day. It was a patriotic, good business act on the part of the railroad people to pool their interests in this way. It would be an equally good business act for dealers to take a similar stand when the time comes. The great business rivalries of the past must cease. To-day it is not a case of competition being the life of trade, but rather co-operation being the life blood of industries. It is not so much a case of what it costs us to do business, but rather what it costs us not to do business.

Suggestion 3. Wonderfully complete organization will be necessary for a driveway between the manufacturing cities in the Detroit zone, including Pontiac, Lansing, Flint, Toledo, and Cleveland, for convenience, and such a great gateway as Chicago, where the streams of traffic will divide, some going northward to supply Wisconsin, Minnesota and the Dakotas, some continuing straight westward to supply Iowa and Nebraska, and some bending southward to St. Louis and that zone.

In such a congested area as that between the Detroit zone and Chicago the highest form of organization will be necessary because that portion of the route would take on a national aspect rather than merely one serving the Chicago zone.

It might be necessary to schedule rigidly the length of a day's trip, to route different factories over different roads, and to adopt a railroad system of operation. It would be better business to handle the drivers as the railroad handles its engineers. The New York Central does not start an engineer from New York and run him to Chicago, but rather keeps each engineer making short and frequent trips over the same division.

To apply this to a Detroit factory: If it were driving 200 cars a day from the factory to Chicago, there to be distributed as necessary, it would have one group of 200 drivers who would work only over the first stage of the route, which might be 150 or 200 miles, as necessary. They could drive their cars over this route by day and return to Detroit by train or other means at night. At the end of their day's trip their cars would be turned over to another group of 200 drivers, who would take them over the second stage of the journey, which might be to Chicago, or beyond, as necessary.

An advantage of this system of driveway would be that a driver would soon learn every detail of the road over which he drove. He would thus save the car many needless bumps and jars. By becoming familiar with the road he would make better speed, with less wear and tear on the car. He would learn the road, he would learn every turn, he would learn every bad bridge, and, in short, would soon became as familiar with his part of the trip as the locomotive engineer.

Suggestion 4. It would be necessary to signboard all of the roads to be used in these driveways. A few months ago, when France was moving her army to stop the German drive on Italy, thousands of motor trucks were used to transport the army supplies from France to Italy. Some of these trucks traveled only a few hundred miles, but others that were on the French western front, that had to travel to the Italian front, covered over 1000 miles. Every turn on the road was specially signboarded. There were signs telling the drivers when they should shift into low gear because of the long descents. There was one descent of over 15 miles that required constant use of the engine as a brake. If it were possible for France in an emergency to accomplish such a wonderful feat with motor trucks over such distances under the stress of war, how much easier should it be to accomplish almost miracles over our highways in times of peace.

Cars Must Be Protected on the Road

Suggestion 5. Many devices can be resorted to to preserve the finish of motor cars while being driven overland. There is no reason why some form of tarpaulin might not be made which would practically cover all of the car during the day, thus protecting the entire body work from mud or dust. This tarpaulin could so be made that the load of supplies carried in the car, such as extra tires, or other spares, would not in the slightest injure the upholstery or paint. This tarpaulin would serve as an efficient cover for the vehicle at night as well.

Suggestion 6. When the French army was moving to the assistance of the Italians, each truck had a trailer attached, and carried enough gasoline for the entire journey. This worked havoc with the gasoline supply throughout France, but had the desired result. The trucks were divided into trains of 20 trucks each. With each train there was a kitchen trailer and a repairshop. There were from 80 to 90 men on each train. Arrangements were such that the meals were served from the kitchen trailer without stopping the trucks. This is but an example of what might be worked out in driving vehicles from factories in America.

Suggestion 7. It may be necessary to organize barracks in which the men are to sleep at night. On the French movement to Italy night stops were made where suitable barracks accommodation might be had. It might be necessary to select sites for night stops and erect tents, or temporary buildings, for such. All of the details for this could be readily worked out, and such accommodation would only be necessary along the main highways, where the numbers would be too great for the hotel and garage accommodations of the places passed through.

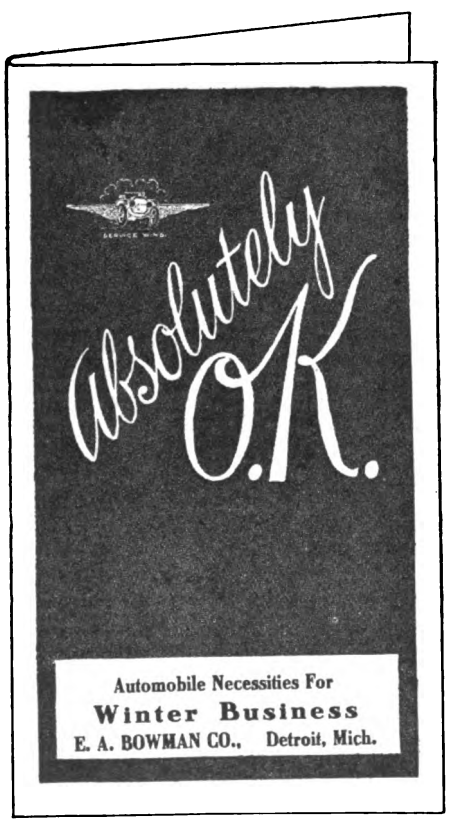
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Winter Business

Think
Work
Succeed

Winter Business Will Bring Spring Profits

Now is the time to go after the farmer, the country merchant, the small-town man—all those whose tractors, cars and trucks have been put out of action for a season, but who will shortly be on the job again for another nine months. Are you ready? Go!



Cold Weather Made Profitable

as the occasion requires. Remember that these goods are seasonable and must be sold during the season. Your jobbers cannot afford to accept this class of goods for credit after January 1st. Bear this in mind, whether you buy of us or of some other jobber. Buy with the idea of selling.

Notice to Our Trade

It does not pay to keep men on the road calling on the smaller towns during the cold winter and as we study economy and overhead, we are taking this into consideration. If you do not receive the usual call from our salesman do not think that we have forgotten you. Send us your orders by mail and if you need a representative of this company we will see that you are called upon.

The above explanation will make clear to you our reasons for the issuing of this booklet. Thanking you all for the liberal patronage that we have received during 1917 and assuring you that we are looking for a larger portion the coming year, with kindest regards.

Very respectfully yours,
E. A. BOWMAN CO.,
E. A. Bowman, Pres.

How Bowman Is Boosting Winter Business

Here are some good thoughts from the Winter Business Bulletin of the E. A. Bowman Co. of Detroit. The bulletin itself is full of winter specialties well illustrated and described.

The idea of calmly hibernating during the winter months awaiting the spring sunshine to once more start the flow of accessory "sap" has never appealed to E. A. Bowman, president of the E. A. Bowman Co., a wholesale accessory house in Detroit.

This firm always prepares an array of seasonable merchandise that any dealer may stock and sell, keeping up his volume of business as well as maintaining his reputation as a live wire.

It has been the custom of the Bowman company for a number of years to gather together winter goods and to display them to the trade in simple, yet effective, circulars like this. It helps focus the dealer's mind on Winter Business and it opens the door to profits.

Make Repairs Sell Cars

GET the names of all car users in your territory and get their repair work. Don't just ask for it. Get it! Circularize! Write letters! Follow them up.

You will find that persistence pays.

Tell them why their work will be especially well done in your shop—and prove it. Send form letters to every one and to those you know write personally.

And have in mind this fact—that in each new repair customer you have not only a car prospect, but a new advertising medium.

Every customer talks. See that what he says about you is good talk.

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Build Up a Tractor Business

TAKE a list of all the farmers you can reach. How many have tractors? How many have not and if not why not? Those who do will need to have them overhauled and repaired before spring. Tell them so! Tell them why! Tell them that you are the man for the job. Send letters to all of them. They will also need supplies and will get them where their work is done.

Go after the farmer who still uses horses and prove to him that he is wasting money. Then sell him a tractor. Thomas A. Edison says that a horse is too expensive for anybody to keep. Think of the crops that could—and should—be raised on pasture land! Compare the cost of horse feed and tractor fuel. Write to all these prospects and FOLLOW THEM UP!

Perhaps you have not a tractor agency. Perhaps you would make more money if you had. More tractors are being used each year. Look into this! Go to the shows! Get literature! Study the tractors and build up another profitable department of your business.

Do this now! There is no time to lose!

A reminder that "Now is the time" has been sent broadcast by the Morris Adler Co., Quincy, Ill. This is printed on a very good blotter, which helps to save it from the waste basket after having been read, and gives the thought a chance to sink in.

MORRIS ADLER SUGGESTS—
NOW IS A GOOD TIME TO

Put new Rubber Connections on your cooling System—
Clean, examine and adjust clutch—
Have universal couplings cleaned and repacked—
Examine your ignition and starting system—
Overhaul your motor, clean out carbon; regrind valves—
Drain transmission box; clean and examine all gears and bearings—
Have differential gears cleaned, examined and refilled—
Take Springs apart; clean and oil them—

No matter what car you own, you can rest assured that we will do our utmost to help you. Call at 618 Vermont Street, or phone 264 and H. B. Herbert or Morris Adler will give you their best attention. We have a very interesting Battery proposition. It will pay you to ask about it.

MORRIS ADLER COMPANY
Distributor for DODGE BROTHERS MOTOR CARS—HUDSON MOTOR CARS
ACCESSORIES, TIRES and PEMALIFE BATTERIES.
618 Vermont St. *"Service with a Smile"* Phone 264.

Winter Bargains in Repairs

The fixed-price plan for repairs works well when the shop is not rushed with business. The Foster-Stalmann Co. of Denver has found that it brings good winter business. They sent these two lists to 500 Dodge and 500 Hudson owners and got results. The idea is that these owners are not used to a flat price for repairs and it looked good to them.

Special Repair Prices

Good 30 Days Only

Foster-Stalmann Co. 845 Broadway

Grind valves, clean carbon, ream valve seats, face valves and adjust tappets for - - - $3.75

Change motor oil, transmission, differential and clutch oil, refill with fresh oil, turn down and refill all grease cups for - - - - - - $2.75

Reline foot and emergency brakes with the best brake lining on the market for - - - $14.00

Graphite springs and take up on spring shackles for - - - - - - - - - - $2.25

Take out squeaks, rattles, new bumpers, tighten up all over - - - - - - - - - - $2.50

Special Repair Prices for 30 Days

HUDSON SPECIALS

Grind valves, clean carbon, ream valve seats, face valves and adjust tappets for - - - - $3.75

Change motor oil, transmission, differential and clutch oil, refill with fresh oil, turn down and refill all grease cups for - - - - - - $3.00

Reline foot and emergency brakes with the best brake lining on the market for - - - $15.00

Graphite springs and take up on spring shackles for - - - - - - - - - - $2.25

Take out squeakes, rattles, new door bumpers, tighten up all over for - - - - - - - - $2.50

Foster-Stalmann Co. 845 Broadway, Denver, Col.

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Lessons That Are Taught by the Philadelphia Show

THE Philadelphia show is the first large dealers' show of this season. A study of the exhibition brings out certain facts that are of interest to all other dealers and show managers. Read this story and see if there is not a thought that applies to the show you are about to hold.

By Ray W. Sherman

PHILADELPHIA, Jan. 19—The Philadelphia Automobile Trade Association has just held its seventeenth annual automobile show. It is held under conditions such as the trade has never known. There is no need of discussing these conditions here. The thing that is of interest is how these conditions have been met and what new thought the Philadelphia show brings forth for other dealers in other cities of the United States. Many shows are scheduled. Their success is a business necessity. These points predominate.

1—The show must draw a crowd.
2—The exhibitors must make a greater sales effort.
3—Dealers must begin now to plan on driving cars away from the factory.

So far as getting the crowd is concerned the Philadelphia show has been about on a par with the New York show. The attendance is about 60 per cent of what it was last year.

One reason for this may be that the number of trade tickets distributed last year is not being given out this year and this brings out the suggestion that there should be more free tickets used this season.

Must Get a Crowd

There are many arguments as to why the general distribution of passes and free tickets is not a good thing for shows. It is contended that this reduces the receipts of the box office, but this does not seem to be a year when the box office should loom up too big in the eyes of the show management.

The one great factor in the success of any show is the crowd and if a crowd cannot be obtained the show is not a success and if the show is not a success, the entire trade in that city is injured.

Therefore, every effort should be made to get in as big a crowd as possible. One way a crowd can be brought in, of course, is through advertising. Another way is through the use of passes, regardless of whether these passes are paid for by dealers and distributed by the dealers or given free to the dealers and scattered all over the town.

There should be some method of distribution of tickets. There should also be a distribution of tickets to dealers and car owners and prospects throughout the territory that the city feeds. *Special effort should be made to swell the attendance on the first few days of the show.*

Thursday the Best Day

The figures at Philadelphia show that the crowd will begin to come in Wednesday, Thursday and Friday and that Thursday will be about the best day of the week. Knowing these facts before hand, managers of other shows should be able to take steps to increase the crowd on the opening days.

Also so far as the reduction of profits by the use of passes is concerned, it may be stated that it is not good business for a show to have a lot of profits on its balance sheet, because they are false profits and the Government is likely to take them on the ground that they are excess profits.

The principal object in having dealers or members of the association pay large amounts per foot for space in the show is to guarantee the expense of the show. Then after the show is over they get a good deal of this money back, but when it starts back to the dealer the Government says that it is a profit and excesses a certain amount of it, which obviously is not the intent in a situation of this kind.

So far as the plan of paying for the space is concerned, however, the money really is in the guise of profit and unless the plan is changed to that used in Philadelphia, the dealers stand to lose unjustly a large amount of money.

In Philadelphia the dealers are charged so much per foot, but the amount charged is only 20 cents—just about enough to cover the expenses of the show. If there is anything left the dealers will get it back and if there is not anything left and there is a debit, they will have to produce a little bit more money to meet expenses, but the profit in any case will not be so large that the dealers would desperately worry about any taken by the income tax collectors; therefore a show management, it would seem, should not worry too much about a reduction in profits. It should aim to cover the expenses of the show and not much more than that; but above all, it should aim to get a big crowd.

Furthermore, the contention that a big crowd interferes with show business and that the crowd includes many who never would buy a car is not justified this year. It is all right to advance this argument in a normal season when people flock to the shows in great numbers, but this year they are not flocking in as great numbers as they were last year and the absence of the nonbuying show visitor may do more to harm the automobile business than his presence would in other years. Just how this matter of getting a big crowd should be handled is pretty much a local affair and is up to each local manager.

Pre-Show Effort Needed

The dealers also should make a greater sales effort before the show, during the show and after the show. Before the show there should be more circularizing and sending out of form letters than is done in normal times. The prospect list should be intensively cultivated, dead wood should be thrown out and every effort should be made to get into the show those prospects who are considered live. After they are in the show the dealers should plan to get in touch with them if possible and to follow them up while the show is on.

A systematic plan for the handling of work in the exhibit should be laid out. It should be the duty of some salesmen to stand in certain positions in the exhibit and meet people who enter it just the same as the bell boys in hotel lobbies have p sitions and the whole line moves up one whenever the boy at the head of the line goes to get a bag. Without a plan of this kind an otherwise good prospect may get away *and this not a year when anybody can afford to let a good prospect escape.*

It would be well to have in each exhibit a small business office with a stenographer. Of course, she may be the only stenographer a man has and she

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may be needed at the salesroom, but it does seem that during show week there is no place she is more needed than in the exhibit and some man who is in charge of sales should be there also.

The arrangement of exhibits is important and it is handled in an excellent manner in Philadelphia. In a great many shows of past seasons, and especially in the Philadelphia show, cars have been crowded into the exhibit until they were so close that the entire show looked like a floor in a typical garage. There was a long aisle down through the middle and that was about the only open space in the place. Everything was crowded in so thick that a red hot prospect could not see a car in an exhibit no matter how thin he might be.

Show Is 100 Per Cent Better

This year Philadelphia did about a thousand per cent better. It laid out the plan of the show floor and marked the spaces. The show committee then marked upon each space the number of cars that this space should hold for good display purposes. An effort was made in each instance to have plenty of open space in the center of the exhibit. A man by looking at the floor plan could see exactly the size of space he was going to have and could also see how many cars he could have and practically the position they should occupy for good display purposes. He did not have to worry about how many cars he could put in. *The show committee told him how many he could have when he bought the space and showed him just about how he should arrange them.*

Often in other years MOTOR WORLD has shown plans of shows, pointing out the positions of cars. These sketches were made after the cars were in place. In Philadelphia this year the show committee drew up a similar map *beforehand* so that a plan made of the cars of the show would correspond with the plan that was made by the committee before the show was opened.

One of Best Shows Ever Held

The result is wonderful.

The Philadelphia show is one of the nicest shows that has ever been held in the United States. It is good from a decorative standpoint, which is entirely another matter and the exhibits are fine. There is plenty of space at each exhibit. The cars are well placed. The show is open and airy. There is a feeling of comfort if one wanders through the exposition building and Philadelphia should be congratulated upon having taken an enormous stride towards good merchandising.

Philadelphia used to have a rule which prohibited a dealer putting anything except cars into his exhibit. This is a rule against which MOTOR WORLD has protested many times and this year it has been to a large extent withdrawn. The result is that a number of dealers have added very artistic touches to their exhibits. They have put rugs in the center of the large bare spaces and some of them have used tables to hold their literature, the tables being placed on each rug.

The Winton company not only has a rug but has a small floral fountain with an electric light in the center of its exhibit. It is one of the best exhibits that has ever been shown in a show and yet the added decorated touch is so simple that it is surprising other dealers have not gone to this same extreme.

Why Not Use Decorations?

A. E. Maltby, the Winton manager who is also the association president and chairman of the show committee, said that perhaps his fountain was not strictly in accord with the show rules, but that he believed it is a type of merchandising that should be injected into the show and that he would be in favor of having each dealer do something of this kind every year hereafter.

The suggestion is made, and it is a good one, that dealers should be required to introduce decorative touches of this kind into their exhibits—consult the architect or decorator who has the show work in charge, or else consult someone who is an authority on artistic work of this kind so that the decorating will not be overdone.

The objects of the show rule against decorating in many shows have been to prevent any one dealer from hogging newspaper publicity by putting on an exaggerated piece of decoration. Exaggerated decorations of this kind would spoil any show, but a little of it will make any show several thousand per cent better than many of them have been in the past.

Sales Are Fairly Good

Dealers at the Philadelphia show invariably say that sales are fairly good, but they also will add the proviso that cars are hard to get. Some of them tell about cars that have been a long time in transit from the factories and some say that in a few instances they have driven cars from the factory to Philadelphia.

This is an exceedingly important situation. Dealers in every city should begin to pay attention to it. It is not the proper thing to wait until the weather is warmer and the roads are good before this drive-away matter is given consideration. Plans should be made now so that when the first warm days come, the dealer can get down to his factory with a squad of men and begin to drive cars overland to his place of business. If he doesn't do that, he is likely not to have any at all to sell, and if he doesn't have any cars to sell, he is simply wasting his time and money if he spends it in taking orders. MOTOR WORLD has told in previous issues how the Buick man in Atlanta, Ga., has driven a thousand cars from Flint and other stories will appear in coming issues on this same subject.

The dealer should be prepared for a good business on enclosed cars, especially the convertible type. Dealers at the Philadelphia show say that the touring car is pretty much out of date as an exhibition product. Prospects who come into the exhibit and ask about cars, invariably ask about the enclosed models and especially sedans. Wherever there is a convertible type shown in which the entire side walls come out, that is the model which receives attention.

Salesmen who are in direct touch with this work say that the old idea that a man couldn't get fresh air unless he had a touring car is pretty well exploded. They say it was nothing much more than a notion anyway, and that any man who has ever driven an enclosed car will never go back to a touring car.

Sedans Most Popular

The chauffeur-driven type is not so popular except in such high-priced lines as Pierce-Arrow and Locomobile; in those cars prospects still feel about as they did before, but the lower-priced lines around $1,000, $1,200 and $1,500 report that many buyers come to them to secure a sedan. These buyers state that they have been using high-priced cars with chauffeurs, but that the chauffeurs have been drafted or have gone into other work and they want cars they can drive themselves. They also want smaller and more economical types and cars in a lower-priced class and of a type in which the driver is enclosed and still can converse with his family. The small sedan or coupe fits in admirably here.

Salesmen report that they are working harder than ever. They say that their sales departments are sending out more form letters and circulars than before and that all of this helps a great deal in making sales. The salesmen are working more intensively and are not letting a prospect go if it is possbile to sign him up.

President A. E. Maltby of the association said that the dealers who held a meeting during show week were very much satisfied with the show. They are not getting the business that they got last year, the crowd that was there last year is not there now, but results are as good as expected, if not better. All the dealers are getting their prospects and they believe these will turn into sales within a few weeks.

Sales Boom Coming

A peculiar psychological condition seems to exist. The whole country has been more or less under the depression caused by the terrible war situation. Finances have been somewhat upset and people who are able to buy cars have been holding off for two reasons: one reason is that they have not been sure of the financial situation and the other reason is that they do not need cars now as much as they will need them a little later when the sun comes out and the roads get dry and the lure of the country calls the motorist just as it has done every year and always will continue to do.

Dealers, therefore, believe that the coming of spring is going to make a big difference in the motor car situation. They believe that the country and spring time will have just as strong a lure as ever and that when the weather gets warm the mental depression among

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prospects will disappear in the warm glow of the sun and hundreds of thousands who have been holding off will once more flock back to automobile row and demand cars.

The usual old-time spring rush is anticipated although possibly on not so large a scale as before. All of this the Philadelphia dealers say makes it necessary for the most intensive of sales work during the winter. If a salesman keeps persistently after a prospect now he may not get the order now, but if he keeps at it long enough and hard enough and keeps hanging on until spring comes and the sun comes out, he then has a chance of closing the sale. That is why dealers should work harder than ever now, even if results do not come immediately. The results in some form at least, are bound to come later as soon as the rigors of winter have passed and the whole nation is cheered up by warmer weather.

The Philadelphia show is absorbing the war tax. This means that on a 50-cent admission the show is paying a tax of 5 cents. The admission nets the show 45 cents instead of a half dollar. On passes, the show is paying a tax of 5 cents a day and paying it in a lump sum, which means that the man who gets a ticket good for a week has caused a tax of 35 cents to be paid to the government. Government inspectors are at the door and keep very close watch on the situation. No difficulty has been encountered, however, and the arrangements seem to work very nicely.

Decorating on a New Basis

Decorating has been handled this year on a new basis. Instead of asking several decorators to submit plans for decorating and with them a bid, this year the show management secured the services of an architect who is also a decorator. He submitted several decorative ideas; the show committee chose the idea they thought was best and then asked decorators for bids on this idea.

The bids varied by as much as 50 per cent and the result was that the show was decorated at much less than the cost that had been paid for some previous exhibitions. As soon as most of the details were in shape, the active management of the show was turned over to E. C. Johnson, who then took charge of all the detail work and has charge of the show until the exhibits are moved out of the building.

The building used is the Wanamaker Garage, which is also used by the John Wanamaker store. Mr. Wanamaker, who is philanthropic, gave three floors to the association without charge. Until he did this, they were somewhat embarrassed for want of a building. With this garage they have the best exhibition space Philadelphia has ever had.

The floor is concrete and was covered with an oil paint of the olive green color, which gave an excellent finish and made the floor look like linoleum. In fact, some who saw it thought the floor had been covered with linoleum.

Following are the exhibitors at the Philadelphia show:

AUTOMOBILE EXHIBITORS

Red Room

Company	Exhibiting
Chalmers Motor Car Co.	Chalmers
T. S. Johnston & Co.	Scripps-Booth
L. S. Bowers Co.	Liberty
Hurley Motor Co.	Nash
Fiat Motor Co.	Fiat
Tioga Auto Co.	Nelson
Oakland Motor Co.	Oakland
B. L. P. Motor Co.	Reo
Foss-Hughes Co.	Pierce-Arrow
W. D. Shepherd	Allen
Eastern Motor Corp.	Standard
Sweeten Auto Co.	Franklin
B. L. P. Motor Co.	Premier
Oliver Co., Inc.	Daniels
Rodney S. Pullen	Milburn Electric
J. C. Bartlett	Detroit Electric
S. R. Blocksom Motor Co.	Stutz
Locomobile Co. of America	Locomobile
Philadelphia Sales Corp	Studebaker
Buick Motor Co.	Buick
Stanley Motor Carriage Co.	Stanley

White Room

Company	Exhibiting
Stoever-Hannold Motor Co.	Stearns
Baker R. & L. Co.	R. & L. Electrics
Ford Motor Co.	Ford
Stewart Auto Co.	Auburn
Monroe Motors Co.	Monroe
Packard Motor Car Co.	Packard
Automobile Sales Corp.	Cadillac
Girard Auto Co.	Peerless
Winton Co.	Winton
Gomery-Schwartz Motor Car Co.	Hudson
Bigelow-Willey Motor Co.	Paige
Fanning-Mathis Co.	Marmon
Larson-Oldsmobile Co.	Oldsmobile
White Co.	White
Murray Motor Sales Co.	Murray
J. Harry Schumacker & Co.	Dorris
Chevrolet Motor Co.	Chevrolet
L. S. Bowers Co.	Cole and Grant
Bell Motor Co.	McFarlan

Blue Room

Company	Exhibiting
Herbert Bros.	Chandler
Biddle Motor Co.	Biddle
Samuel Earley Motor Co.	Mercer
Standard Motor Car Co.	Abbott
Saxon Motor Car Corp.	Saxon
Samuel Earley Motor Co.	National
McCurdy Brainard Co.	Jordan
Henry A. Rowan, Jr., Co.	Haynes
Thornton-Fuller Auto Co.	Dodge
La Roche Bros.	Velie
Maxwell Motor Sales Co.	Maxwell
Grieb & Thomas	Briscoe and Kissel
Parker Motor Sales Co.	King
Rogers-Lexington Motor Co.	Lexington
Hupmobile Sales Corp.	Hupmobile and Holmes
Mitchell Motor Car Co. of N. Y.	Mitchell
Overland Motor Car Co.	Overland

Accessory Exhibitors

Traveler Tire & Rubber Co.
Berrodin Rubber Co.
Manufacturers Supplies Co.
Gaul, Derr & Shearer Co.
J. H. McCullough & Son.
Cahall Motor Supply Co.
J. G. Duncan, Jr. Co.
Geo. W. Nock Co.
J. Eavenson & Sons
A. Geissel & Sons
A. E. Jawer
Pierce Auto Supply Co.
Supplee-Biddle Hardware Co.
H. C. Roberts Electric Supply Co.

Newark Plans Dealer Convention

NEWARK, N. J., Jan. 21—Dealers of North Jersey, including passenger car and motor truck men, are planning a big sales conference in connection with the annual Newark show, which will be held in the First Regiment Armory, Sussex Avenue and Jay Street, Newark, N. J., Feb. 16-23 inclusive.

The following resolution was unanimously adopted at a meeting of the Board of Directors of the Boston Automobile Dealers' Association, Inc., held December 24, 1917:

Whereas, it is the desire of this Association to co-operate in every possible way with our Government to the end that we shall win the war, and as it is our paramount duty to assist in the conservation of the financial resources of the nation; and inasmuch as our Government has suggested that simplified methods be inaugurated in handling our affairs, and that capital be kept in a liquid condition, Be it, Therefore,

Resolved, That we recommend to our members that, beginning January 1, 1918, they discontinue the practice of carrying open accounts in all departments of their business.

Boston Automobile Dealers' Association, Inc.,
By CHESTER I. CAMPBELL,
Secretary

THE BOSTON AUTOMOBILE DEALERS' ASSOCIATION has decided that the cash basis is the right basis for business, and its members are displaying in their shops and offices a half-sheet poster with the above message

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Minnesota Permits Lien on Unpaid Work

Editor Motor World: I am running a garage in this town and overhauled a truck which came to $65. I sent the owner a bill when the work was completed, but he did not call for the truck. That's about three weeks ago. In the meantime I used the truck a day for my own use and he heard about it and came over and wanted to know if I would settle the bill for $50 for the use of the truck and, to avoid trouble, I told him to get the $50 and take his machine. This was on a Sunday and so he gave me a check for $50. To protect myself I wanted that check certified, so he went off in a storm and said he was going to fix me for using the truck without his permission.

The next day I found the check was worthless—no money in the bank. In the meantime I have not heard anything from the party. I sent him another bill for $50, deducting the balance for use of the truck. The machine was not damaged in any way. What can I do now? Did I do right in settling? If he doesn't get the truck in six months, what can I do then? Can you let me know about this at once?—William Klebs, St. Louis Park, Minn.

Answer.—Of course, you did wrong in using this truck without the permission of the owner. It was a foolish thing to do, besides it is unlawful in your State. The Minnesota laws provide that persons altering, repairing or bestowing labor on any article of personal property at the request of the owner or legal possessor have a lien for their just and reasonable charges. If they are not paid within ninety days they may sell the property at auction on giving notice. They also have a lien for storage. Under the circumstances the best thing you can do is to go to some local lawyer and let him take care of this matter for you, as, of course, you cannot foreclose the lien yourself.

What Replevin Is

Replevin is a word with which all garagemen and dealers are more or less familiar. They know that if another person has a car or other personal property belonging to them they can get it back by an action of replevin.

Just what it is necessary to show and to do to support an action of this kind, I find, is an unsolved mystery to all but the few initiated ones who have actually been through the proceeding.

An action of replevin, however, is not nearly so mysterious as it sounds, but in order to recover in such an action there are certain things a person *must allege.*

Of course, the procedure and the legal papers which are necessary vary in the courts of the different states, but the requirements in the courts of New York State are sufficiently similar to permit dealers to see the workings of this often asked for relief, so they are used as examples.

First, it is necessary to show that the person seeking the return of the property is the owner of and is lawfully entitled to its possession.

Second, the property the return of which is sought should be described so that it can be readily identified.

Third, it should be alleged that the property is being wrongfully detained, and the reason why it is being detained should be described as fully as possible.

Fourth, it should be shown that the property was not taken by virtue of a warrant, for the collection of a tax, assessment, or fine, issued under a Statute of the State, or the United States, or under an execution or warrant of attachment against the person seeking relief or of any person through whom he derives title, and lastly the value of the property according to the person's best knowledge and belief should be stated.

After the above facts are properly alleged a bond must be procured and filed for twice the amount the property is valued at.

The sheriff is then directed to take the property and hold it until the various claims to it are decided upon, or if the person who is in possession desires he can also give a bond to secure the judgment which may be recovered against him.

If a dealer can show all of the above facts he is ready to have his lawyer institute suit on his behalf.

Should He Settle ?

Editor Motor World: Would appreciate it very much if you would give us a little advice on the following:

A New York man spending the summer in this vicinity brought his car to my garage to be repaired. We did what we could, but were unable to accomplish just what was wanted. We explained this to him at the time, and he said that made no difference. It was all very satisfactory, and he paid his bill, without any question, and continued giving us his business.

The latter part of August and the first of September he started in having goods charged, amounting to a little over $20. This consisted of a tire, gasoline, oil and other commodities. After having these goods charged he took his car back to New York and sold it. He now refuses to pay this bill, claiming that our charge on the work previously done on his car was exorbitant, as we did not accomplish what he wanted, and will only give me $10 to square the account.

Would you advise my settling this bill for the $10 offered or try to force collection by legal proceedings?—A. C. Banks, Sandwich, Mass.

Answer—There is no doubt that the majority of dealers would be disposed to settle this claim rather than have the trouble and bother of a lawsuit, and where the amount involved is so small they will probably come out just about as well. When a lawsuit is started, the attorney must be paid and where the suit is contested he very naturally charges more than when it is uncontested. Perhaps it would be a good thing if some one brought suit against this customer, as he might not try this stunt again then. The only question is, would you rather lose $10 by settling or get the whole amount of $20 and then pay out a substantial part of it after having the annoyance and trouble of suit. This is something you must decide yourself.

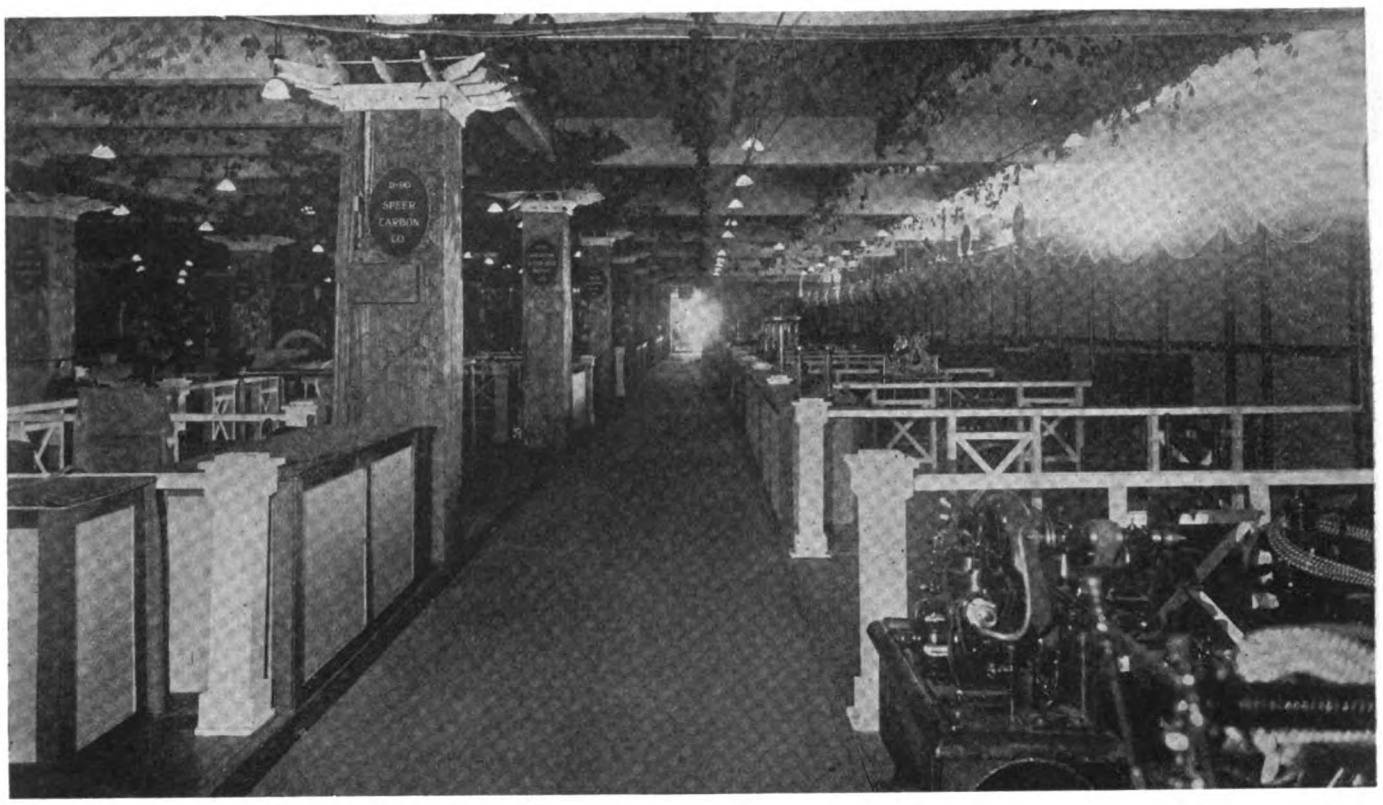
Definition of Repairing

Judge Duncan of the Supreme Court of Illinois, in a case recently before him, gave the following definition of the word "repairing."

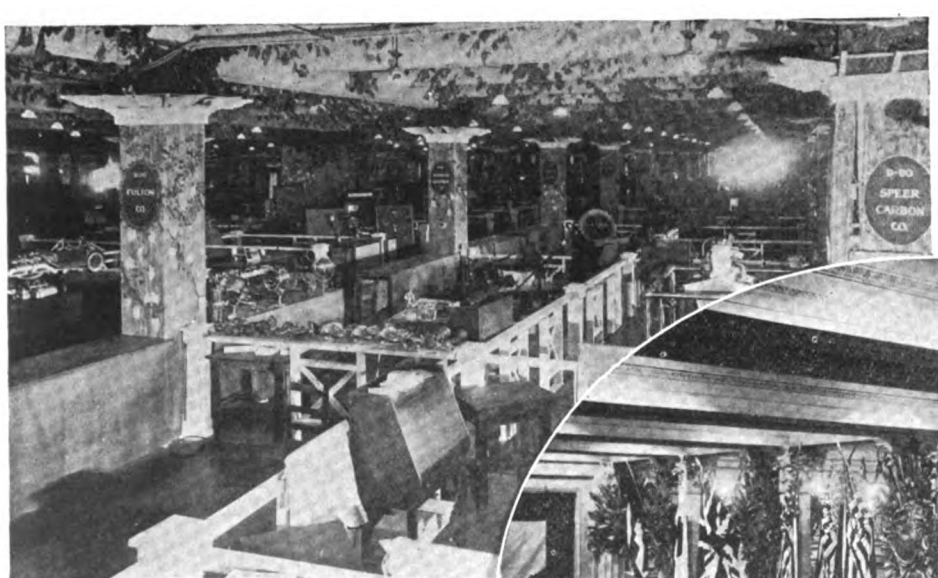
"Repairing means restoring to a good sound state after decay, injury, dilapidation or partial destruction. 'Doping a belt' to increase its friction and prevent its slipping is not repairing, within the meaning of a statute, providing that no repairs shall be made to the active mechanism or operative part of any machine when the machine is in motion."

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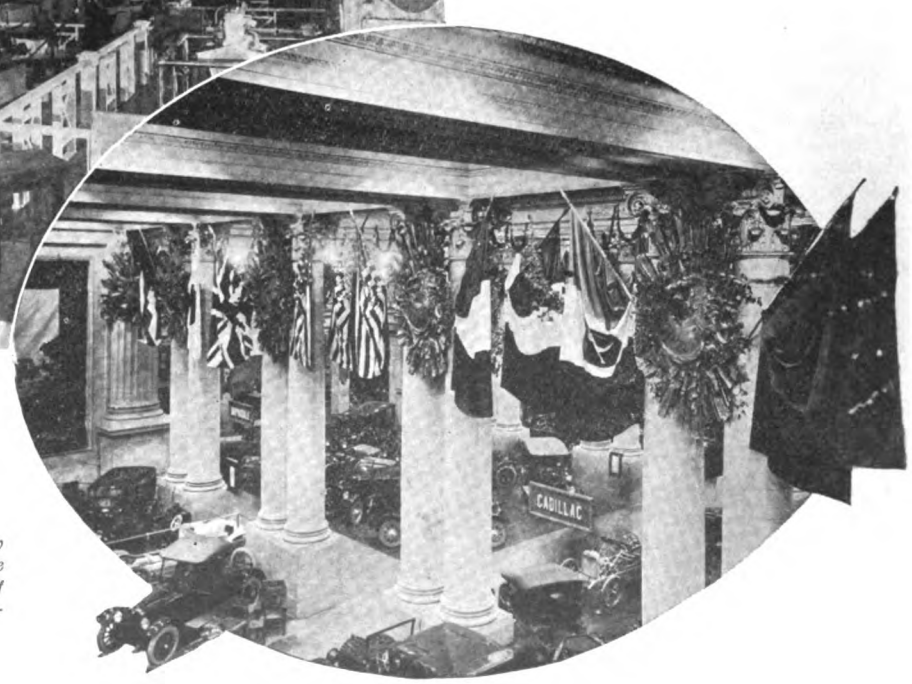
Accessories a Big Part of the Show



The accessory floors at the New York show were a bigger feature this year than ever. There were *more exhibitors and there was a greater interest in this department. The accessory men say 1918 is going to be one of the biggest years they have had if they keep America's nearly 5,000,000 cars in operation*



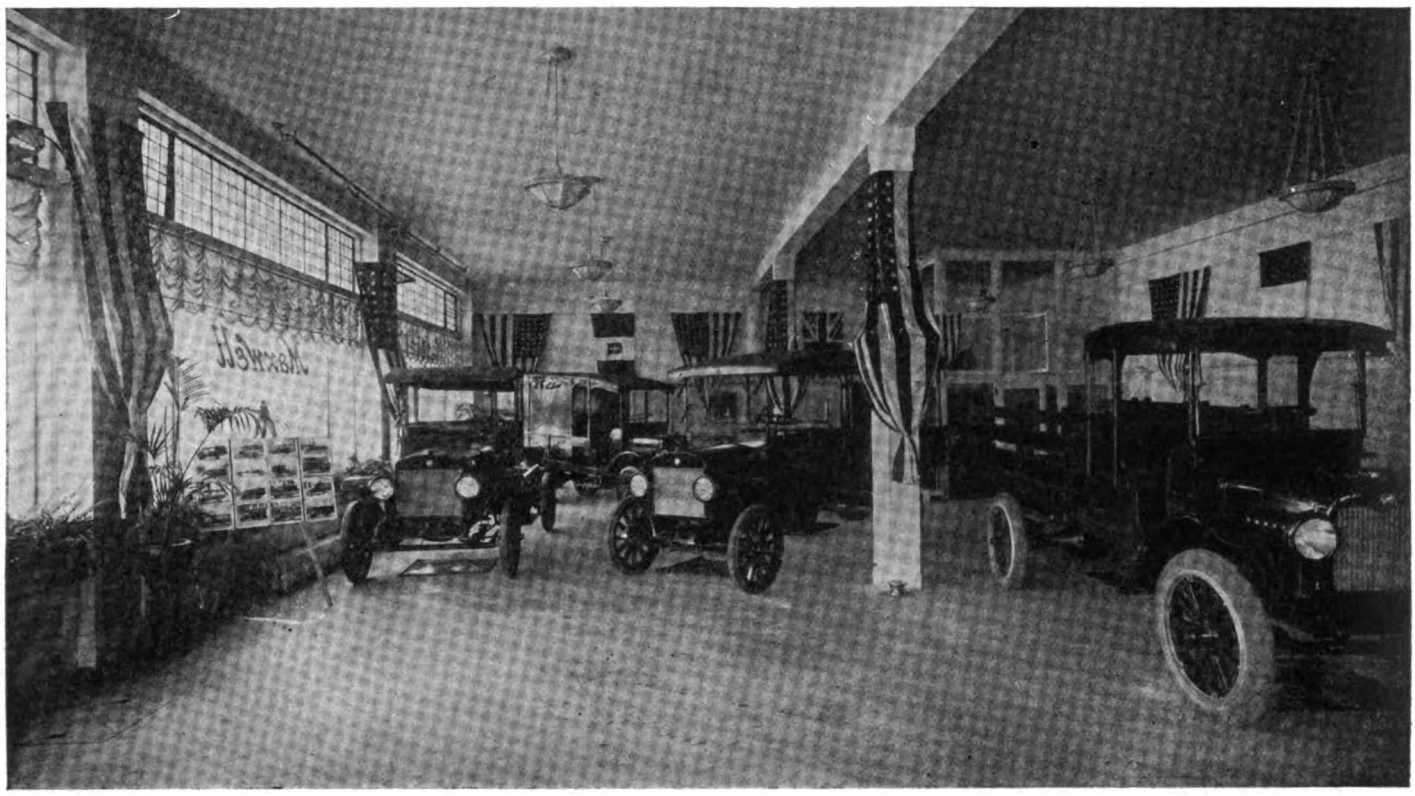
Above is a view over the back fences of the exhibits, showing how the big floor looked to the man who walked down the aisles, casting his eyes this way and that



And at the right is another view of the imposing car exhibits on the ground floor. The great array of flags this year was one of the features of the affair

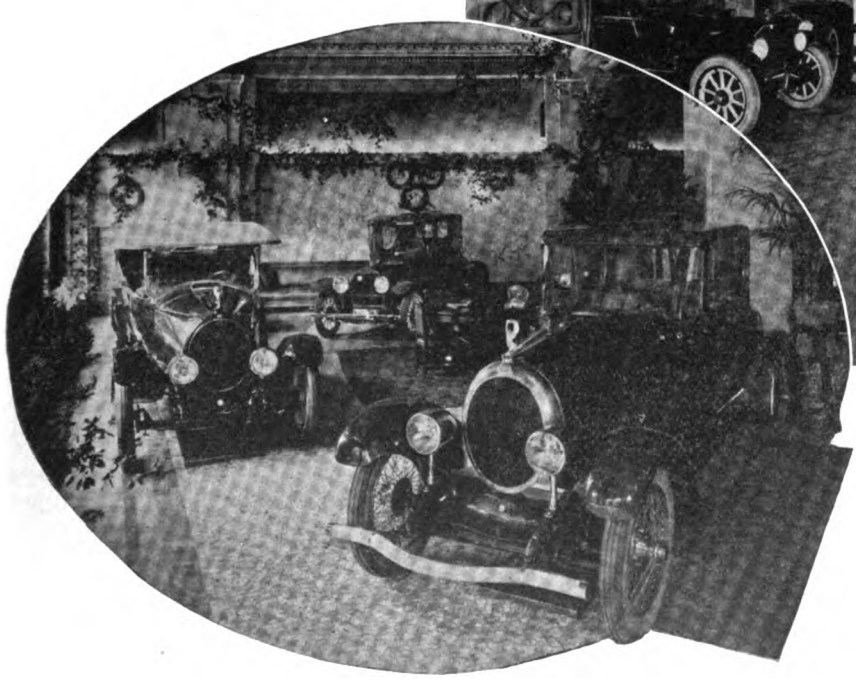
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New York Dealers Dress Up for the Show



***Maxwell staged a truck show in its salesroom on Columbus** Circle. All the passenger cars were moved out, the room was given an appropriate business setting and invitations were sent out to a big list of prospects*





Peerless (upper) entwined garlands about the pillars in its salesroom, added rugs and palms, and the man who went from the big show at the Palace to the Peerless salesroom missed none of the show atmosphere

*C. T. Silver (left) made a grand bow with his Silver-Appersons and Silver-Kissels. His new and original body types were shown in a nicely decorated salesroom and dealers in his territory were urged to bring **prospects to the floor, where salesmen assisted dealers in closing sales***

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Building a Better Catalog

The Catalog and the Salesman Must Be Judged by the Same Standard—*Productiveness*

By M. E. Faber
Advertising Manager of the C. A. Shaler Co., Waupun, Wis.

THIS article covers some points that should be of interest to the jobbing trade at this season and offers some suggestions which are in line with the policy of the Educational Committee of the National Association of Automobile Accessory Jobbers.

My suggestions are the result of a recent study of several hundred 1917 accessory catalogs and through familiarity with practically every accessory catalog that has been issued in the past eight or ten years, and they are offered with full knowledge of the difficulties encountered in compiling catalogs which include so many thousands of articles and getting them in the hands of customers in time to secure the full benefit of the short automobile season.

MR. PRINTED CATALOG and Mr. Human Salesman must be judged by the same standard—PRODUCTIVENESS.

Mr. Catalog's value to the jobber can be measured only by the amount of merchandise he sells. His only functions are to assist the salesman by providing compact data on the lines his house carries and to supplement the personal efforts of the salesman by making it easy for the customer to order by mail in the salesman's absence.

Now, Mr. Catalog is a most obedient salesman. He will accept his master's orders to talk to any class of trade—dealer, repairman or consumer. He will shout the merits of his wares in bold face type or meekly confide his willingness to accept any orders his customer may conveniently give. He will tell his story in clear cut, convincing language or he will use a phraseology that more nearly conceals than reveals the excellence of his merchandise. He will patiently wait his turn to be consulted as a reference book and then give up his information illogically and grudgingly, or he will be his customer's confidant, always ready to help with valuable suggestions. *He serves faithfully but only to the degree in which the compiler has given him power to serve.*

No Second Chance

Mr. Catalog, too, like other printed matter, has no scrap value. *He must make good the first time—there is no second chance.*

So, when Mr. Catalog is put on the payroll, the sequence and consistency of his solicitation, and the tone of his appeal must be even more carefully planned than in the case of Mr. Human Salesman.

In days gone by Mr. Catalog went into the highways and byways to solicit business from consumer, dealer and repairman. He was handicapped by being compelled to carry excess baggage on his consumer calls in the form of various kinds of equipment designed only for the public repair shop. He was handicapped in calling on the dealer by a lack of knowledge of the dealer's language and point of view.

To-day Mr. Catalog's journeys are confined to the dealer, garageman, and repairman, but old habits cling and while he shows improvement, he still talks to his customers in the same words that used to be the accepted form for addressing the car owner.

How to Start Training

Before we start to train Mr. Catalog for his 1918 trip let us put ourselves in the place of Mr. Salesman as he calls on a customer.

If Mr. Salesman is diplomatic he doesn't start his solicitation by reciting credit terms, etc., which have come to be rather drastic in dealing with certain classes of garage trade. He saves that until after he has the order and then often gives the impression that C. O. D. terms are a benefit and advantage to the customer.

Wouldn't it be better therefore, instead of greeting the customer with "If you aren't rated, we take no chances; send cash or we ship C. O. D.", to save that phase of the transaction for a personal letter, or include it in the discount sheet?

Let Mr. Catalog, like Mr. Salesman, first secure the customer's confidence in the house by a frank statement of its policies, its methods of co-operation, comprehensive stock, shipping facilities, etc. Possibly in a supplement or insert of distinctively colored paper let him offer some useful suggestions about merchandising, window-trimming, accounting, use of mailing lists, repair shop systematizing, tables of mechanical data—pointers that the customer will want to refer to from time to time.

After Mr. Salesman has "passed the time of day" he'll probably take a look over the dealer's stock of accessories for car owners, and take an order for that class of goods before he proceeds to talk about shop equipment. He won't confuse his customer by talking about both lines in the same breath.

Mr. Catalog can do the same thing. Instead of thinking of himself as "accessories" and "Ford accessories" let him classify his lines as "Accessories" and "shop equipment."

The first section can comprise everything that dealers sell to car owners, and a subdivision may include Ford specialties; the second would contain machinery, machinists' tools, and equipment that is designed only for use in the public repair shop. Some goods may be difficult to classify, but if in doubt, put them in the "accessory section."

Easy for the Dealer

Thus Mr. Catalog makes it easy for the dealer to keep up his stock of accessories to sell and encourages him by suggestion and association *to sell more accessories.* Besides, the selection of equipment for the repair shop is simplified for the garageman by the removal of distracting influences.

The advantages of this arrangement are apparent when we consider the possibilities it offers as a means to educate the garageman who has not yet developed into a merchant, as to which lines are adapted for resale and which for his own use.

As a concrete, typical illustration, take the line of vulcanizers. Almost invariably we find all types and makes of devices that come under this general head grouped together without regard for the garageman's point of view. Small puncture repairers, retailing for a dollar, rub elbows with complete equipment for the tire repair shop. Confusion is supreme.

Mr. Catalog is to blame if the motorist's vulcanizer isn't carried in the accessory stock where it belongs instead of being used by the garageman as an inadequate substitute for the tire repair plant that should be in his shop.

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Wouldn't it be much more consistent with Mr. Salesman's methods if Vul-Kit and Ford-Kit and 5-Minute Vulcanizer were grouped with other quick selling motorists' accessories, and the large vulcanizers were shown among their own class of shop equipment, such as air compressors, welding outfits, charging sets, etc.?

The same argument applies to many other lines. Hand pumps and air compressors should not be grouped together; or twenty-five cent grease guns and pump buckets; or tire saving jacks and turntables.

Two Specimen Ads

Compare the following specimens copied from the catalogs of two prominent jobbers.

Here is the first, obviously addressed to the dealer:

"Tremendous national advertising has created a big demand for this wonderful 5-Minute Vulcanizer. Feature it and cash in on this advertising —it means big sales for little work.

"This vulcanizer mends all tube punctures perfectly, making repairs that are far superior to any stuck-on patch. Heat is produced by burning a chemically treated disc, making the operation quick, clean and safe. Each outfit includes 12 patch and heat units.

"Each dozen packed in an attractive display carton, with advertising matter. 'SHALER' is known to every auto owner. Stock plenty at all seasons. Sales are quick and profit liberal."

And the second, of rather neutral tone:

"This vulcanizer mends tube punctures perfectly, making excellent and lasting repairs. No tool box equipment is complete without one.

"Heat is produced by burning a chemically treated disc about the size of a dollar. Each of the twelve patches furnished with the outfit is complete in itself, consisting of the patent heat unit in its metal container, and the patch of raw rubber attached to the surface of the container.

"The clamp, a dozen patches, and a piece of sandpaper comprise the outfit."

Which is most likely to make the dealer realize that here is something he can sell —and get busy with an order blank?

Mr. Catalog vs. Mr. Salesman

If the garageman were searching for goods to sell as is his neighbor the merchant whose entire energy is devoted to devising sales methods, a very brief listing of the jobber's accessories might be sufficient.

But—the catalog contains dozens of items that only those rare garagemen who study their trade papers will recognize as salable and profitable. The manufacturer's advertising, no matter how extensive, cannot overcome this problem. The dealer is accustomed to depend on the advice of Mr. Salesman as to the salability of goods that Mr. Salesman recommends.

Mr. Catalog must tell the dealer on twenty-nine days of the month what Mr. Salesman tells him on the thirtieth.

If an article is widely advertised, he ought not to conceal the fact. If the manufacturer furnishes circulars, window displays, or other selling helps, he must make capital of them. If there is an exceptional margin of profit to the dealer, he must feature it.

He can do this so diplomatically that even when the dealer introduces him to the car-owner, every word will help to make a sale.

Mr. Catalog goes to hundreds of dealers who need unlimited encouragement to become better merchants. He will make your customers more profitable to you by educating them in the elements of retailing.

Show Real Prices

Some jobbers, especially those who have been connected with the hardware trade, list the goods in their catalogs at double the dealer's net price in order to allow the dealer a straight 50 per cent discount. While this eliminates the necessity of an elaborate discount sheet, it fails to show the dealer what the retail prices to his customers should be. We refer particularly to nationally advertised articles which are sold at standard prices throughout the country.

So far as equipment for the repair shop is concerned, this is immaterial, as all that interests the repairman is how much the equipment is going to cost him. In the case of accessories which are to be resold to the motorist, it is quite essential that the dealer should know the correct retail prices. Otherwise he may make the error of overcharging a customer who knows the correct prices, thereby losing business, or of unwittingly cutting prices, and losing the profit to which he is entitled.

The cataloger who prefers to use unique list prices should also show the resale prices. The idea of salability may be again impressed on the dealer by a mere statement, such as "Sells for $3.50."

It is also advisable to use the manufacturers' stock numbers when possible. Many cases have occurred where dealers, sold by a manufacturer's literature, have tried to locate the same goods in their jobber's catalog and have failed because the jobber had used stock numbers of his own.

A Final Suggestion

Just a final suggestion which would enable Mr. Catalog to start on his 1918 trip fully prepared with up-to-date information and prices on his merchandise, and which would eliminate such printer's errors as inverted illustrations, obsolete copy, copy adjacent to wrong cuts, etc.

Have your printer make two sets of galley proofs instead of one. Retain one for your own reference and send the other to the manufacturers whose lines are represented. Without exception they would appreciate your co-operation and probably would have their pages back to you with authoritative O. K.'s as quickly as you could read all of the proof yourself.

War Weapons Draw the Crowds



THE HENSHAW MOTOR CO., Boston, which handles the Dodge, is still doing business. This is one of the ways it gets business. The window shows a gun, a jackie, the insides of a torpedo and numerous good signs. Make a war window, photograph it at night and send the picture to Motor World

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A Department of

BETTER MECHANICS

No. 53

Bearing Work on Ford Engines

By S. T. Williams

THE following has been prepared in response to numerous requests from subscribers. However, the equipment required in rebabbitting the bearings is quite elaborate, and unless a large volume of work is available it cannot be used except at a loss. The larger Ford service stations or assembling plants throughout the country are fitted with the necessary equipment and will rebabbitt the main bearings for $1.25. Connecting-rods needing new bearings will be exchanged for 75 cents each. In view of this, ordinary circumstances will not merit the use of the equipment in a small shop, but it was asked for—and is incorporated in the following story.

THE Ford car has been standardized for many years and for this reason the shop equipment required in doing repair work has been exceptionally well standardized. The following are some of the more common appliances used in overhauling the Ford engine, and in general they may be made and used in any shop, greatly facilitating the work.

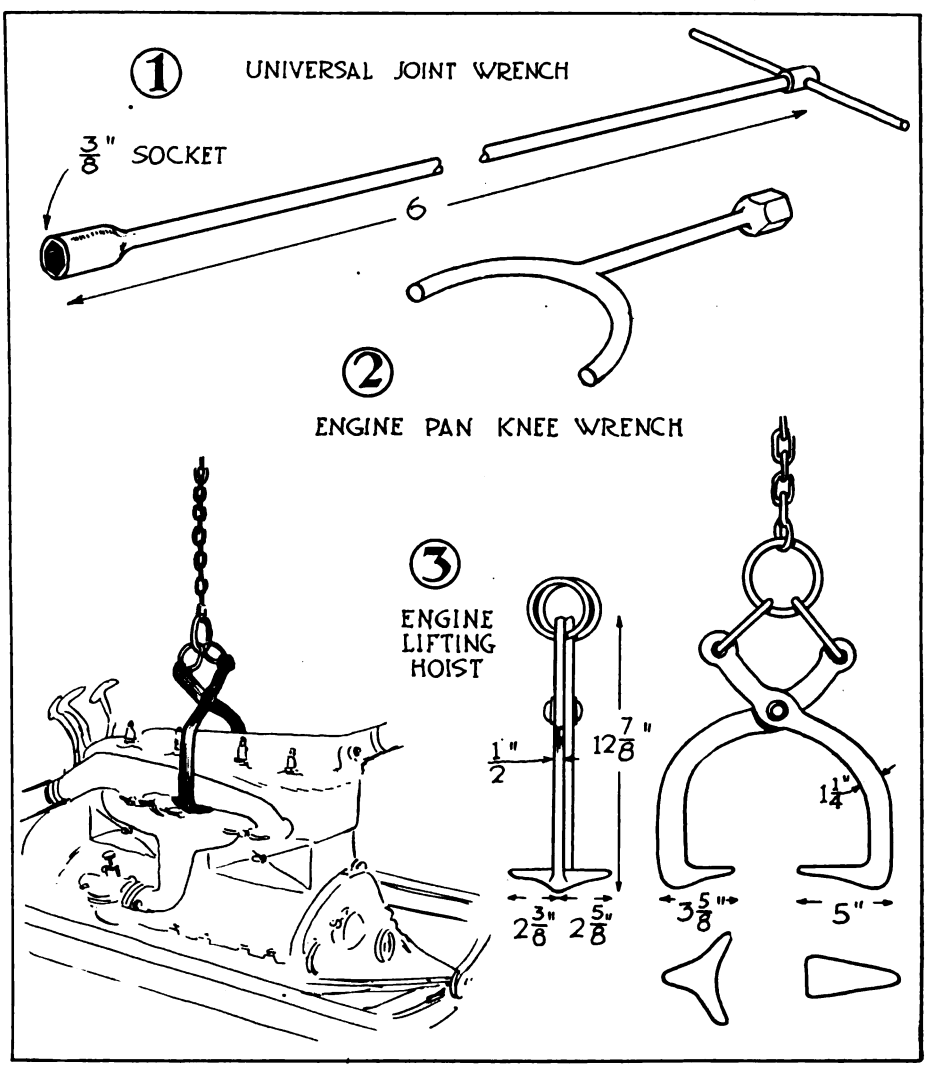
Fig. 1—*Universal Joint Wrench*—This wrench permits the bolts holding the Universal joint to be removed from the rear of the car much quicker than they could be removed by a short socket wrench through the floor bolts. It is a ⅜-in. socket wrench with a 6-ft. handle.

Fig. 2—*Engine Pan Knee-Wrench*—By this wrench the mechanic can hold the lower end of the bolts, using his knee as a lock and another socket wrench to unscrew the bolt. Otherwise two men are required to do this work, one to hold the nut from beneath and the other to turn from above.

Fig. 3—*Engine Lifting Hoist*—This hoist is of the tongs type and is used in conjunction with a chain-fall. After all points of connection of the engine with the frame are removed these tongs are caught over the waterjacket at the rear and the engine is lifted from place. The point of attachment is about the center of weight and the engine balances nicely.

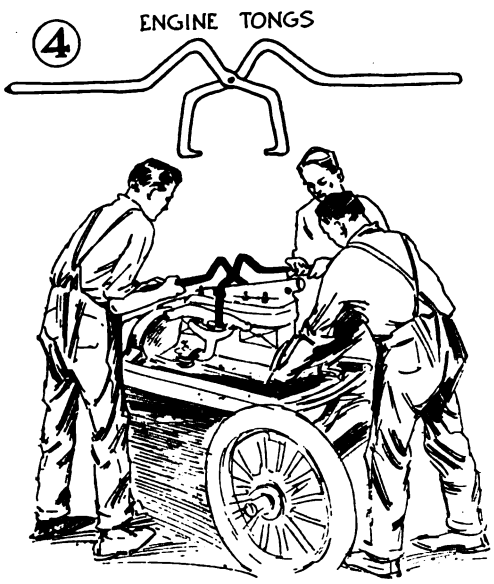
Fig. 4—*Engine Lifting Tongs*—In the smaller shops where a chain-fall is not used these tongs are advisable for lifting or replacing the engine. One man at each side and another at the front in the manner shown can readily handle the engine.

Fig. 5—*Engine Repair Bench*—The Ford Motor Co. provides engine clamps for holding the engine. They should be mounted on a metal top bench in the

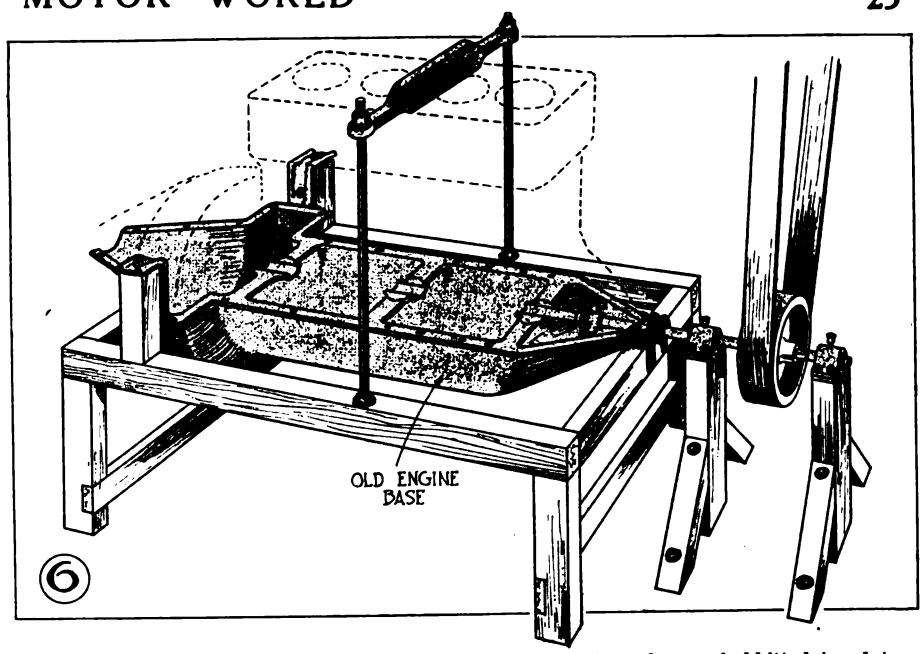


These special tools will greatly facilitate bearing work on Ford engines and others. They can all be made in the shop from odds and ends of discarded material. The story tells all about them

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This shows how one of the special tools is used in removing the engine from the frame



A special stand for running in the bearings after they have been rebabbitted is advisable and is not difficult to make. Shop power can be used

manner shown. This arrangement renders all parts of the engine accessible and holds it firmly in place.

Fig. 6—Running-In Stand—After the bearings have been tightened on an engine, the common practice is to permit the engine to run under its own power for a short time until some of the stiffness is taken out. By bolting the engine to an old Ford base that is secured to a wooden frame work, and driving it from the line shaft, the bearings may be quickly "burned in." This permits the bearings to be fitted with a small amount of scraping and is the practice followed in all large Ford service stations.

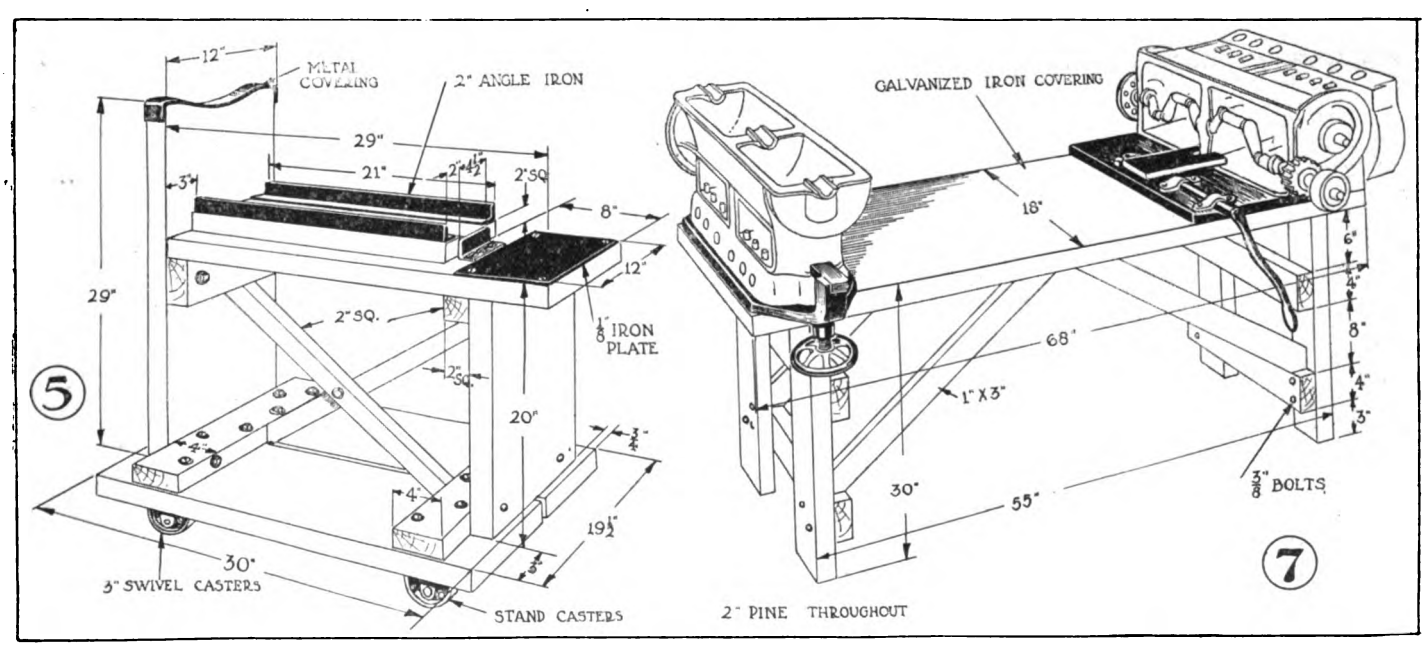
Fig. 7—Engine Truck—This is another form of an engine repair stand and is equipped with castors, so that the engine may be moved anywhere around the shop. It may be constructed by any mechanic and in a smaller shop may be used instead of the engine stand shown in Fig. 5.

Fig. 8—Rebabbitting Arbor—This is the arbor used in rebabbitting the main bearings, and forms a mold so that the bearing metal may be correctly formed in place. Similar arbors are used in forming the babbitt liners on the connecting-rod bearings and on the main bearing caps.

Locating Engine Noise

There is a marked distinction between the quality of the knocks caused by a rough bearing. That caused by a loose connecting-rod is similar to the tapping of steel with a small hammer, and is most noticeable when the car is idling downhill or just after closing the throttle after speeding up. The noise caused by a rough main bearing is a true pound, most evident when the engine is under load. These two noises are distinct from the noise caused by a loose piston, which is evident when the throttle is suddenly opened.

The connecting-rods may readily be tightened without removing the engine from the car by simply removing the plate on the bottom of the crankcase, removing the lower connecting-rod bearing halves and draw-filing the ends slightly. It is essential that the same amount of material be removed from each side and that the caps be replaced in exactly the position from which they were removed. The fit of the bearings can be determined by applying prussian blue to the crankshaft in noting the points of contact with the babbitt.



A special engine repair bench is a very valuable adjunct to any shop where extensive bearing work is done. This is a good one

Here is another type of engine truck which is on castors and can be moved about the shop to the most convenient place

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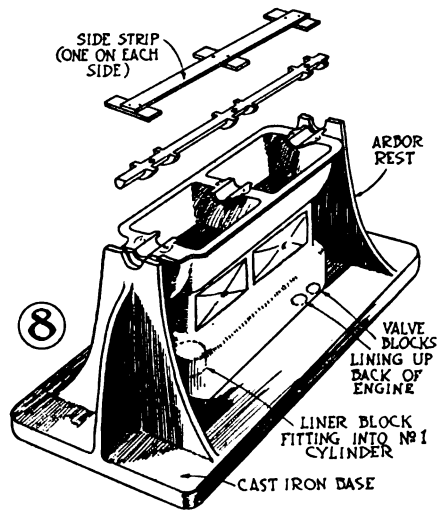
To adjust the main bearings, however, it is necessary to remove the engine from the car. The following are the steps in detail in doing this work:

1. Drain the radiator.
2. Using the long socket wrench remove the four bolts at the universal joints.
3. Remove the rear spring shackles and pull the rear axle back after blocking up the rear of the car.
4. Disconnect the radiator staple and radiator hose. Then remove the radiator.
5. Unstrap the commutator and place it at one side.
6. Move the spark-plug wires.
7. Shut off the gasoline and remove the forward line from the carbureter.
8. Disconnect the exhaust manifold from the exhaust pipe and remove both intake and exhaust manifolds.
9. Remove the chain shaft bracket and the timing gear case.
10. Using the knee-wrench, remove the two bolts holding the pans to each side of the base and knock the pans down, out of the way.
11. Remove the base bolts.
12. Remove the transmission case after loosening the reverse low and brake bands.
13. Using the hoist shown in Fig. 3 or 4, lift the engine from the frame.

By this method the base of the engine is left in the car undisturbed and the engine may be removed from the frame without disturbing the steering gear and dash.

The cylinder heads may then be removed and the engine placed on the truck shown in Fig. 7. The connecting-rods, transmission and magneto coils are next removed, leaving the crankshaft alone in the engine. The three bearing caps on the main bearings are removed and cleaned with gasoline. Before doing this, however, the amount of looseness present should be determined by prying the crankshaft with a crowbar. A small amount of material is filed from the sides of the bearing caps, prussian blue applied to the crankshaft and the cap replaced.

The bolts holding the cap are tightened as far as possible and the crankshaft turned. The points of contact between the shaft and the bearing will be registered, and these should be scraped down until the full bearing the length of the cap is indicated. The bearing caps may then be replaced and bolted securely.



The rebabbitting arbor is used to correctly form the bearing metal

In the foregoing manner, familiar to every mechanic, a small amount of looseness may be removed. However, if end-play is present, or if the bearings have been burned out, rebabbitting is then necessary.

The first step in rebabbitting is to clean out the old babbitt. This may be knocked out with a cold chisel or melted out with a blowtorch. The latter operation is somewhat more satisfactory, as it serves to remove all traces of oil from the bearing housings and to warm the castings up slightly so that the new babbitt will not chill too quickly on pouring.

The babbitt arbor shown in Fig. 8 is then placed in the bearings, and the side straps pressed closely at the sides. These form a perfect mold for the new babbitt which is poured in through the openings at the top of the arbor. A good grade of babbitt should be used for this purpose and the bearing housing should be warmed to prevent chilling the babbitt.

The caps of the bearings may be rebabbitted individually in a similar manner, and are then bolted on to the crankcase. A special line reamer is then used to ream the three bearings out to approximately the size of the crankshaft and brings the bearings properly in line. After a slight amount of scraping and fitting, shims are bolted in place and the block is placed on the running-in stand. Here the final fit is secured and the bearings run in in oil. The assembly is the reverse of the tearing-down process.

Grand Rapids Dealers Close Evenings

Arrange with Downtown Garage to Give Emergency Assistance—Cars Are Towed to Dealer Free the Next Morning

GRAND RAPIDS, Jan. 17—Eighteen of the leading dealers in this city have cut out night and Sunday service as a means of reducing overhead.

In order that service may still be rendered at night they have designated Bronson's Garage, in the downtown section, as an emergency service station for all dealers, and have notified 5000 car owners in this section of the new plan.

Any short-time repair will be made nights and Sundays by the Bronson Garage, which takes care of all emergency work, and jobs which cannot be done in a short time are turned over to the proper dealer at the beginning of the next working day. The owner of the car is asked to notify whichever dealer he wishes to handle the job.

The new plan was announced to the 5000 car owners by the following letter:

The conservation of available expert automobile mechanics' services as a war-time requirement has caused the following representative list of automobile merchants in Grand Rapids to announce that on and after December 10th, 1917, their places of business will be open from 7 o'clock in the morning until 6 o'clock in the evening on week days only. They will be closed after hour mentioned in the evening and Sundays all day.

In cases requiring immediate service during the night and on Sundays, prompt and satisfactory arrangements may be made with Bronson's Garage, centrally and conveniently located at 218 Bond Avenue, to start cars and for towing same into the garage. By notifying the dealer you desire the following morning, your car will be taken to that service station and service authorized will be rendered promptly.

The following mentioned Automobile Dealers have adopted this plan and appeal to your patriotism to give it your hearty support and co-operation. Anticipation of your requirements both in repairs and supplies will prevent annoyance to yourself and greatly facilitate the operation of this section.

Barkwell-Buick Co.
Becker Auto Co.
Beelby-Neuriether Co.
Valley City Motor Car Co.
Bruff W. Olin
Oldsmobile Co.
F. P. Oswald Co.
Grand Rapids Overland Co.
Western Michigan Paige Co.
Miller-Elgin Co.
Reo Motor Co.
Haynes Co., of G. R.
McKay-Nash Motor Co.
Winton Motor Car Co.
Cadillac Co. of G. R.
Chandler Motor Sales Co.
Western Michigan Motor Co.
Kramer-Elgin Co.

Yours very truly,
AUTOMOBILE BUSINESS ASS'N.
Per Ernest T. Conlon, Sec.

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Let *Every* Dealer In

Why Should *Any* Dealer, Who Goes to a Show on Business, Be Excluded Because of Foolish Ticket Regulations? What Do *You* Think?

"THE automobile dealer is to the industry what the fuel is to the car, relatively; for between the maker and the owner he supplies the power to put the car over; yet, as far as national shows are concerned, he is treated with less consideration than the man who writes motor news for the *Podunk Bladder*."

One of the biggest dealers in the country made that statement at the New York show. He has a large territory for a well-known car. He sells a lot of cars each year, and so helps the manufacturer to be a success. But as far as the show is concerned he is a nonentity, practically. Three tickets were allotted to him for the show. They were admissions. Once they were used, thereafter he had to pay his way in whenever he went out.

"Here I am in New York, at a personal sacrifice of my business at home, paying my own hotel bills, when my visit here is of more importance to the maker than to me," he continued. "Yet a reporter for a rural paper rates higher, for he gets a season ticket entitling him to enter any and all times free. Now, something is wrong somewhere, and if the National Automobile Dealers' Association never did anything else but straighten this out and give us what we are entitled to, it would have an excuse for its existence."

Scant Consideration for Dealers

There is a lot of truth in what that dealer said. And other dealers have said similar things before. But each year it is the same story. The men who have invested their money in the industry as dealers come to New York or go to Chicago, and they get scant consideration.

They go home feeling sore when they should be sent home happy. Many of them do not care much about the extra cost of getting into and out of the show, but there are others, successful business men, who feel that the principle is wrong. And just at this particular time, when the dealers are wondering about the future; when it is vitally essential to the factories that they keep their dealer organizations intact, the manufacturers, who are responsible for the New York and Chicago shows, should take the matter up and remedy it.

Every holiday season the big department stores put on extra help. These employees sometimes are paid on a commission basis. If they were told that during holiday week they could enter three times gratis to go to work, but after that they would have to pay for entering, how many would stick on the job? How many would take such employment? A few, perhaps. Yet it is upon just as nonsensical a basis as this that the motor dealers are treated at the two big shows. Instead of encouraging them to come and help make it a success they are induced to stay home. And of all times this is the one particular year, with war conditions frightening many, when they should get encouragement instead of being treated like unruly schoolboys.

There is no reason why a dealer visiting a national show, who has come hundreds of miles, should not be given a season ticket or a button entitling him to enter at any or all times. The show is not a prison, and the dealers should not be handled like inmates of such a place upon whom an extra penalty should be imposed for going outside a few times.

Good Examples From Smaller Shows

Certainly, if Kansas City, Philadelphia, Boston and other cities can arrange a system for handling the dealer situation, the N. A. C. C. officials should be able to do the same. It may be that there would be a few abuses of the privilege. It is the same in every line of business. But the majority should not suffer for the sins of the few. The total drop in income from allowing dealers to enter the show freely would be so small as to be negligible.

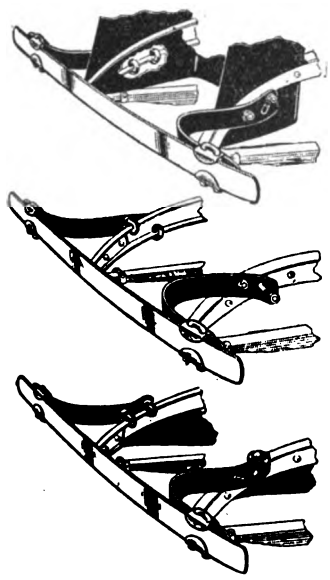
At the present time many dealers jest about the "rake off" from the two big shows; they jest about the "camouflage decorations"; they laugh over the trips of the makers to Christmas Cove each summer and the supposed plans made there. Now, that sort of thing, if kept up, will become dangerous. From jesting the dealers will get sore, and they may start a movement to compel the makers to not alone pay for their tickets to the shows, but the entire cost of railroad and hotel bills as well. The day has passed when live dealers have to go begging for the privilege of selling cars. Many good cars are still unrepresented in some big places. And there are makers who would gladly pay such expenses to get the right representation in big centers. Let one or two makers do it, and the others will have to follow.

So, while there is time the makers should look at their dealers clearly, not through the reverse end of the telescope. The makers are saving at the spigot now, but the dealers have begun to get busy with a mallet at the bunghole, and unless the latter are assured that they will get a fair share they will spill the entire contents of the barrel. And the mallet pounders will revel in their work, while the spigot watchmen will not be able to see the joke.

At the annual meeting of the National Automobile Dealers' Association, at Chicago, the matter should be taken up, and while it is too late to do anything this year to remedy conditions for the two big shows, the problem can be settled to govern future exhibitions. If the makers expect real co-operation from their dealers, here is a chance for them to make a start.

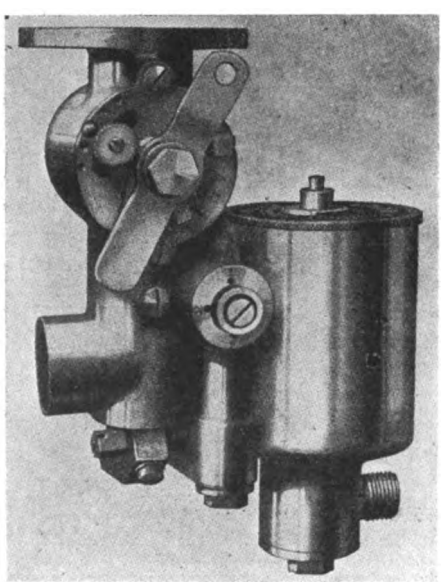
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Accessories



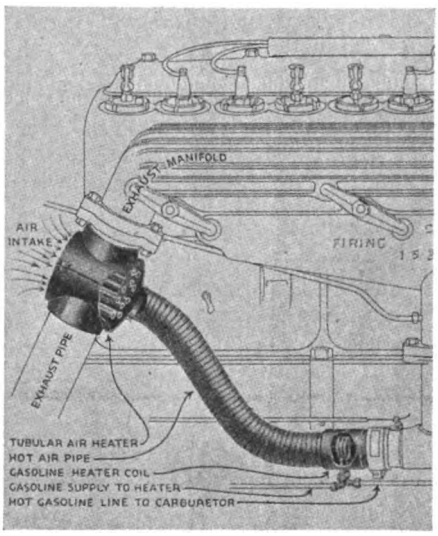
Metsco Bumper

The Metsco bumper is an addition to the Lyon bumper line. It is made of spring steel, being a single bar held by brackets which are adjustable to cars which have splash pans extending to the frame end. Price $7 to $9, depending upon size and finish.—Metal Stamping Co., Long Island City, N. Y.



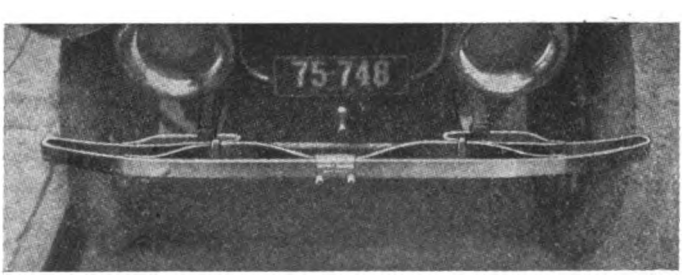
Lacharnay Carburetor

This carburetor has two spray nozzles in separate chambers, one for idling and slow speeds, the other for normal and high speeds. At normal speeds both jets operate in compensation. At high speeds the smaller nozzle acts as an air valve.—Lacharnay Carburetor Works, Paterson, N. Y.



Ellis Car-Bur-Aid

This is said to secure a uniform mixture at all temperatures and altitudes. It heats both the air and the fuel before they enter the carburetor by means of the direct heat from the engine exhaust. This passes around the copper tubes of the Car-Bur-Aid, the air flowing through these tubes being thus heated to a very high temperature and conveyed to the carburetor through the hot air pipe as shown. The figure shows the device attached to an Owen Magnetic car, but the installation is similar on all cars having the intake and exhaust on the same side of the motor. Prices from $15 to $37.50, depending on the type of car.—Motor Efficiency Corporation, Philadelphia.

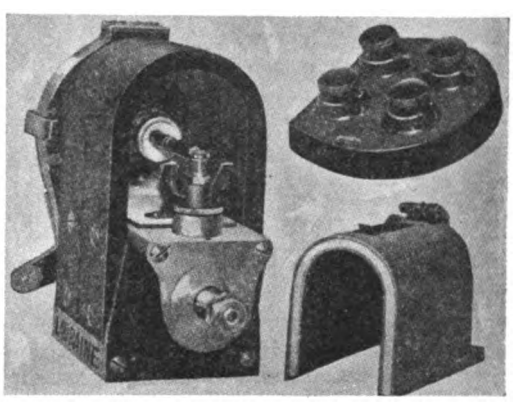


Hercules Bumper

A new Hercules bumper has been put on the market. This is a spring steel type, the front steel bar being re-enforced by a secondary spring which is held fast to the other by clamps. Made in three sizes with black enamel finish. Prices, large car type, $14; medium car type, $13; Ford car type, $11; for nickel finish, $1 extra on all types.—Hercules Spring Bumper Co., New York.

Lauraine Magneto

The Lauraine magneto is made in all standard sizes and is of the Siemens armature, high-tension type. It is a standard type of machine made of high grade materials, offering no radical departures in design. The waterproof covering can be removed, rendering the parts accessible. The breaker housing is supplied with two arms, permitting the machine to be linked up from either side. All castings, bases, and end plates are bronze; the cam is a cross section of steel tubing, and all high tension parts are hard rubber. By means of a small window in the waterproofing cover the spark at the safety gap is visible. Prices, $30 to $80 according to size.—Menominee Electric Products, Inc., New York.



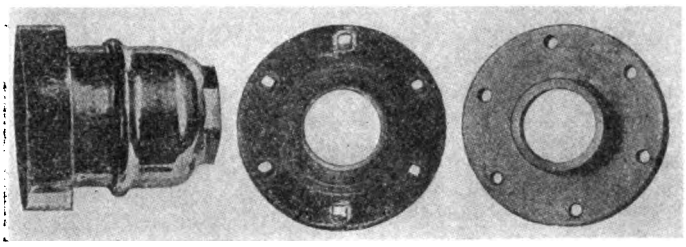
Alcola Anti-Freeze

This preparation is in the form of powder, instantly soluble in cold water. It is said to protect against freezing to 20 degrees below zero, Fahr., to raise the boiling point of water from 25 to 50 degrees, and to be non-evaporative and chemically inactive. It is furnished in 10-lb. air-tight tubular boxes, enough for a small car. Price $2.—Alcerno Mfg. Co., Newark, N. J.

Wonder Seal

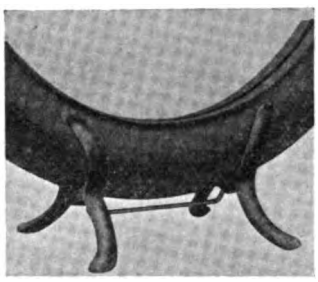
Wonder Seal is a substance slightly thinner than putty made for repairing punctures. It may be injected into an inner tube, about 1¼ lb. to the tube, by means of a grease gun. The Wonder Seal then forms a sort of slimy covering on the inner surface of the tube; and whenever a puncture occurs the material oozes out forming a seal to stop the leakage of air.—Wonder Seal Co., New York.

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Hudson Demountable Hub Wheels

These are wheels equipped with the patented Hudson hub which permits the wheels to be removed and attached by screwing the hub off or on. The hubs are attachable to any set of standard Ford wheels. Price, per set of five attachments, $12.50.—Hudson Motor Specialties Co., Philadelphia.

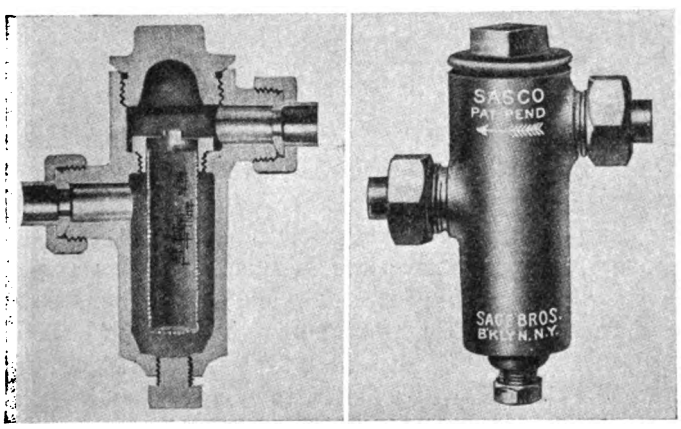


Tire Display Rack

A display rack automatically adjustable for holding tires of any size. The weight of the tire causes the arms to grip and hold firmly. Simple and strong in construction. Price $1.75 in black or grey; $2.25 in nickel.—Ellis-Smith Mfg. Co., Inc., Buffalo.

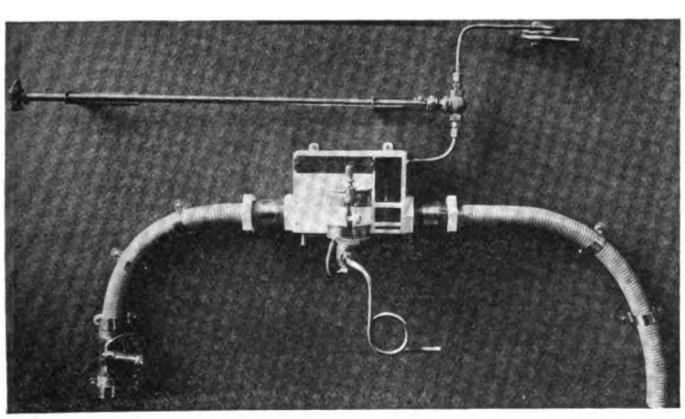
Victor Spotlight

There is a new line of wind-shield spotlights made in various styles to match the different types of headlights used upon standard cars. Finished in nickel and black enamel.—Corcoran Victor Co., Cincinnati.



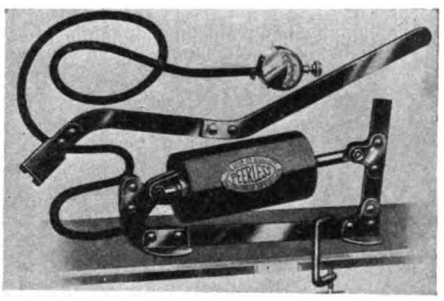
Sasco Strainer

This is a device for straining gasoline before it enters the carburetor. It is made of aluminum, 4 in. in height and 3 in. wide, and is fitted with ground joint couplings for any of the following sizes of tubing; 3/16 in., ¼ in., 5/16 in., and ⅜ in. outside diameter. The strainer has a top which may be unscrewed so that the strained basket mesh may be removed and cleaned when necessary. Price $3.—Sage Brothers, Inc., Brooklyn, N. Y.



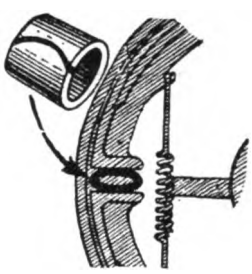
Wateretor

This is a device to supply steam to the intake manifold of any gasoline or kerosine motor. It consists of a water chamber heated by the motor in which water is kept at a constant level by an auxiliary float chamber. The steam generated in this chamber is fed through pipes to the intake manifold, and controlled by a throttle at the dash. —Shawvan Motor Equipment Co., New York.



Peerless Runningboard Pump

A runningboard tire pump of all-steel stampings, finished in all black japan baked on, with the cylinder finished in red. The cylinder is made of one piece, and is seamless. The pump is furnished with gage, if ordered, with 90 in. of hose, and with a clamp to fasten it on the runningboard. The handle folds and the entire outfit will fit into a small tool box. Each pump is packed in a carton; 24 cartons will be shipped in a wooden case. Price, $3.50 without gage; $4.25 with gage.—Corcoran Mfg. Co., Cincinnati, Ohio.

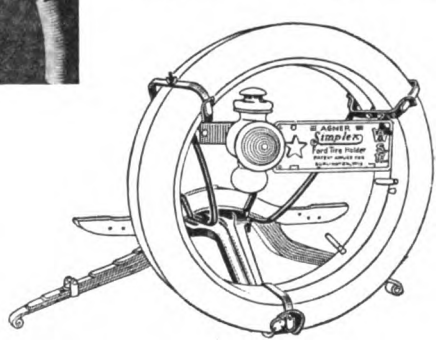


Apco Brake Adjuster

When the Ford emergency brake shoes are worn so that the cams do not open the shoes wide enough to engage the drum, these adjusters are driven over the cams to take up the wear. They are made from high grade steel and can be used indefinitely as they are subject to little or no wear. Price 25 cents per pair.—Apco Mfg. Co., Providence, R. I.

Agner Simplex Tire Holder

This tire holder has a lower base stamped out of open hearth steel ⅛ in. thick and drawn to shape with an upward raised reinforcement. This strengthens the holder and forms a strong support for the rear spring. Two demountable tires are held in adjustable steel bands, and the holder also carries a license and lamp bracket so constructed that the tires do not hide the number.—Agner Simplex Co., Burlington, Wis.





Utility Floor Machine

This device consists of a motor in a case traveling on two wheels, something after the manner of a vacuum cleaner. It carries a steel wire brush, a palmetto scrubbing brush, a tampico polishing brush and a sandpaper disk which are interchangeable and are serviceable for use on all kinds of floors, from wood to concrete. The device formerly was made by the Vacuna Co., New York, and now is made by the Kent Vacuum Cleaner Co., Inc., Rome, N. Y.

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Editorial Observation

The New Year and the Old Garage

HERE is a brand new year and all the good resolutions we made on Jan. 1 will, without doubt, be carried out to the letter—perhaps.

Also, perhaps, there is room for one more and this is it: Let us get to work now and put the garage and all things pertaining to it in the condition we know it should be in but isn't.

A recent visit at random to a number of garages, big and little, busy and otherwise, showed so much to be desired in this respect that we are moved to preach a little on the text of cleanliness, order and efficiency.

Look over your competitors.

Look about your own premises.

First: Are they as clean as they can be made? If not make them so, and don't forget the dark corners. It is not so long ago that city streets were dirty, as a matter of course, because they had always been so. They are not so now because the public insists that they be kept clean and attractive. The car owner expects the same thing when selecting a place to keep or repair his car.

Second: Are they kept in order? Are separate parts, old tires, broken and discarded odds and ends simply thrown aside in any temporarily convenient spot—and left there—or are they put at once where they belong, to be kept, sold or scrapped? The latter, of course, takes less time in the long run than the former and makes a good impression on the customer.

Third: How much time are you losing due to the inconvenient placing of your departments? Perhaps you don't call them departments—the stockroom, the repairshop, the storeroom, the wash rack. In any large factory much thought is given to those things because time is money. Why not in your garage? The less distance a man has to go and the less trouble he takes to get tools and materials for his work the better that work will be and the less time it will require to make it so.

All these things are truisms. We all know there is room for improvement and we have always intended to do just these things—only we haven't.

Let's get to work and see what a difference it makes. Begin now and keep it up as though all success depended upon it.

To a great extent it does.

Wanted—Roads

THESE are days when we are getting on the right track so far as thinking nationally is concerned.

In the first 9 months of the war there were many wrong conclusions with regard to our national system. For example, Priority Order No. 2, issued though the Council of National Defense on Nov. 1, prohibited the use of open cars for carrying road material, the reason being that these cars were needed for the transportation of coal.

At that time the argument sounded feasible, and as everybody was anxious that coal should be moved tens of thousands kept quiet and would not criticise, lest their criticism might be considered unpatriotic.

Look to-day and see how the tide of opinion has turned and follow the national current of thought with regard to highways. We have appointed a Highway Transport Committee for the avowed purpose of improving our highways so that we can drive motor trucks and motor cars over them, thereby relieving the congestion on the railroad cars.

The State of Pennsylvania has agreed to keep the Lincoln Highway across the state free of snow during the winter months in order that motor trucks for the government may be driven from the factories in the zone of the Great Lakes to seaboard. Arrangements are being made to keep our highway across the state of New York from the Great Lakes free of snow for the same period.

The Highway Transport Committee should demand and will demand—and it will be backed up by the War Department—that where there are not bridges strong enough to carry 5-ton trucks loaded, that bridges adequate for such service be put in.

A movement is on hand to build roads that are suitable for motor truck service. The day of the macadam road and the horse has passed, and the day

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of the cement road and the motor car is in our midst.

No longer can our state governments continue building dirt roads and gravel roads, and macadam roads for motor truck service. They must build cement roads and others of that type that are capable of sustaining motor traffic that the section of the country requires.

Roads Are Essential

The government has learned that road material is essential. It has learned that roads are essential. It has learned that motor trucks are essential. It has learned that good bridges are essential.

Perhaps you do not believe this yourself. Perhaps you think that it is possible to have such roads in your territory. Perhaps you say there is not money enough to construct such roads.

Now that you are a part of the government; now that the government is in your place of business; now that it is in your home; now that it should be in your own brain! The world looks to you to say what your territory requires in the way of roads, and the burden will be on you, if the necessary information weighed against the needs of the day is not forthcoming.

Responsibility Is on You

The responsibility is on you and not on some one "down in Washington."

Years ago there was enough money to build a railroad through your town. The population was sparse; crops were poor; people were poor. But the railroads went through.

It was transportation that made the great agricultural area between the Rockies and the Alleghenies, and now it is road transportation that is necessary to bring the yield from those fertile acres up to the yield of the century-old friends of England and France and enemy countries.

The railroads cannot do that. It must be done by the highways and the essential motor truck, and the essential motor car.

It is up to you, Mr. Dealer, to say if you want to do your part in this essential program. It is a national disgrace that the greatest grain-producing area in the world is without improved roads.

No Modern Through Roads

There is not a modern motor truck road for through traffic running either east or west or north or south across the great fertile plains stretching between the Rockies and the Alleghenies.

The fault that this area has not roads has rested with the people living in this area. If this area is to have roads it will depend on the people living in it.

The business of the dealer then becomes a broader one than merely selling motor cars or motor trucks, or farm tractors, or motorcycles, or motorboats.

His job is selling transportation in the zone in which he lives, and to sell transportation he must sell roads on which that transportation can be used.

He cannot sell 5-ton trucks without selling roads suitable for 5-ton trucks, and while he must sell the truck to an individual, he must sell the road to the community.

Trucks Useless Without Roads

The Atlantic type locomotive is no good without the heavier rails and heavier bridges to carry it. The Mauretania and Olympic are practically useless without the 40-ft. channels in which they can steam to the docks and without the 1000-ft. docks that they can be brought alongside of.

Along the same line of reasoning the motor truck is practically relatively useless and inefficient without the modern roads that it needs.

Good Advice

HOW often have we seen behind a dealer's counter a great stack of expensive advertising matter that the manufacturer has sent out? How often have we wondered just why it was there? We have been inclined to blame the dealer for failing to make proper use of this material when the blame does not always rest with him.

Mr. E. B. Sigerson of the McGraw Tire & Rubber Co. has taken another slant at the trouble and it seems so good that part of it is given here. He says:

"The distribution of advertising matter through the dealer always has been accompanied by a considerable amount of waste, and no better thing can be done right now than to eliminate this waste and to make the distribution of this advertising matter as economical as the distribution of any other kind of merchandise.

"Very often the salesman completes a sale, and when he is writing up his orders at night he decides to send the dealer advertising matter and so he sends in his order, which is in due time sent out to the dealer.

"The dealer is not equipped to distribute this advertising matter properly to his trade, he had not asked for it, it is not welcome, and not having been thoroughly advised as to the purpose of this advertising matter, he rather resents the manufacturer's attempt, as he sees it, to force him to advertise for the manufacturer's benefit.

"This may be a false and foolish stand for the dealer to take, but the dealer does take this stand, and always will, until he and the manufacturer have a more definite understanding than they have had in the past."

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What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

On Trade Acceptances

Editor Motor World: I have carefully read your treatise in the Dec. 19 issue on Trade Acceptances.

I have heard the merits and demerits, the good and bad features on the Trade Acceptance proposition discussed pro and con, and I am free to say that in a way there is room for doubt, in my mind, as to the practical workings of this method of payment as applied to the retail trade or the man who usually lacks a good accounting system that prompts him to realize and recognize the necessity of meeting his obligations. Just as outlined in your supposed or alleged question No. 9, which reads, "We do not wish to be bound by any specific date of maturity," and then taking into consideration argument No. 8 applying to increasing dealers' credit on the same page, which reads, "he might even have trouble borrowing money on a note to get goods and the Trade Acceptance gives him these goods." These two points answer the strongest arguments I have heard against the Trade Acceptance. There is a constant fear that the dealer will operate upon the theory of "come easy, go easy," and that he will neglect the old saying of "short accounts make long friendships," and that it will ultimately prove to be a liquid credit for a man who does not apprecate it, rather than a liquid asset.

In so far as the article that you have published and the space you have given it, it is certainly very clear and comprehensive.—Wm. M. Webster, Commissioner, National Association of Automobile Accessory Jobbers, Chicago.

Likes Trade Acceptance

Editor Motor World: The writer has read with considerable interest your article on "The Use of Trade Acceptance" in your issue of Dec. 19 and wishes to take this opportunity to compliment you on the completeness of your explanation. It has been a great help to us in getting our dealers educated to Trade Acceptance plan which we have been using for the past sixty days.

We are enclosing herewith our term letter and general letter which we sent out to trade, also sample of our Trade Acceptance, and if same would be of any advantage to you in answering inquiries, we wish to assure you you are at liberty to use same.

Yours for a prosperous year and betterment of trade.—G. S. PATTERSON, Columbia Tire & Supply Co., Lafayette, Ind.

The Lafayette Letter

To Our Customers:

We would respectfully call to your attention the terms under which our merchandise is sold to firms with sufficient credit rating to allow open account terms:

"A"—2 per cent discount for cash within 10 days of date of invoice.
"B"—Net 30 days from date of invoice on open account.
"C"—Net 60 days from date of invoice when Trade Acceptance is given.

Trade Acceptance Blank will be enclosed with statement showing your monthly balance, or with your invoices If it is your desire to take advantage of "C" terms, please fill in and return Trade Acceptance Blank promptly.

We appreciate that if you send us this Acceptance you may not have received the goods and therefore may not have had an opportunity of checking up the shipment. This is our guarantee that any adjustments will be made by us as carefully and promptly as if the amount had not been settled before arrival of goods.

If you elect to remit under either terms "A" or "B," please return Trade Acceptance Blank without your endorsement thereon. We will then understand that your check less discount will be sent within ten days, or your check for net amount will be sent within thirty days.

At the expiration of thirty days, if you elect to pay under "B" terms, and check has not been received, the account will be subject to sight draft without notice.

Yours truly,
COLUMBIA TIRE & AUTO CO.

Another Columbia Letter

Dear Sir: We have a proposition to place before you that should be of vital interest to all concerned. It is with reference to the New Federal Reserve Act, which has been passed by our Government, and places in our hands an instrument known as "Trade Acceptance."

No doubt you are familiar with the conditions, but if not would like to impress upon you the fact that the Trade Acceptance is not a note; for a note is drawn by a person, whereas an Acceptance is drawn on a person. The acknowledgement of the purchaser by the signing of this Acceptance, places the seller in position if necessary to discount this paper, which is negotiable.

The United States Government has adopted the plan and the Federal Reserve Banks are endorsing it, realizing that it would do away with the monetary stringencies which so often afflict the United States; it will give the seller, whether manufacturer, jobber or dealer, an opportunity to realize on his accounts receivable at once, thereby placing the burden of carrying the loan upon the banks, which is only proper.

As we have occasion to ship you more than one lot of materials per month, our plan would be to attach a Trade Acceptance to our statement, which is sent out on the last day of each month. If drawn on a sixty day basis, you can see it will give you almost ninety days on some invoices, and at the same time place us in position to get the use of our money should it be necessary. You in turn should be able to place your customers on the same basis, as the general trend of all lines of business under the present conditions is toward a CASH basis.

We trust that we make ourselves clear in this and are pleased to state in all cases when submitted to us, and where we have submitted the same plan to some of our other customers, it has been very favorably received.

Awaiting with considerable interest your reply as to whether this plan will meet with your approval, we remain,

Respectfully yours,
COLUMBIA TIRE & AUTO CO.

We Stand Corrected

Editor Motor World: We are always interested in the public commendation of Trade Acceptances, as we believe they offer a splendid opportunity to strengthen the financial backbone of our country.

Your article in the Dec. 19 issue of Motor World is very valuable, but we write to ask if you properly stated the condition in suggesting that the holder of an acceptance for $100 can deposit it at his bank and receive $95 instead of waiting thirty or sixty days for $100. We believe you had 5 per cent per annum in mind, which would return $99.58 to the holder at 5 per cent for thirty days.

Kindly advise us if this is not correct.—The Hess-Bright Manufacturing Co., E. I. Amthor, Credit Manager, Philadelphia.

Thank You

Editor Motor World: Out of the several automobile trade papers which come to my office the Motor World gets first consideration. In fact it is the only one which I find time to read regularly.—FRANK F. BLIVEN, president and manager of Standard Motor Co., Baltimore.

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Business Big in Omaha

Editor Motor World: I believe you will be interested in figures which have just been issued reviewing the automobile industry here in Omaha for the past year. These figures are as follows:

	1916	1917
Automobiles	$25,660,134	$39,814,157
Automobile supplies	4,347,000	7,713,873

This places the automobile industry at the head of the jobbing business here in Omaha.

These figures are authentic, and were carefully compiled by our Commercial Club.

I mention this fact because I have seen figures set forth by one of our competing cities, where a very large amount of imagination was used. I know that in publishing figures of this kind you wish facts rather than guesswork, and you have them in the figures I submit to you.

The record made by us this past year makes us very hopeful in regard to what we may expect in the year to come.

Omaha Automobile Trade Assn.,
Clarke G. Powell, Sec'y-Treas.

War Idea

Editor Motor World: Having read the war ideas of the different dealers and garagemen, which have been a benefit to me, I herewith give you the plan that I have put in operation.

In October I procured a list of all the users of commercial cars in the city. I wrote each one a personal letter bidding for his business, also storage in my garage, offering to do all light repairing and minor adjustments between 6 p. m. and 6 a. m. In this way we have been able to fill our garage with storage and also keep our men busy and still take care of our regular customers in the daytime. We also wash each commercial car once per week gratis. I find that in doing this it is much easier to keep our place clean and also keep the night man busy. — G. R. Austin, Grand Rapids, Mich.

Seventeen Mason Men at War

Editor Motor World: The rubber industry has sent a great number of enthusiastic young men to the front to serve Uncle Sam in the war for the liberation of humanity. One of the foremost of the younger companies, the Mason Tire & Rubber Co., which is conspicuously known for its rapid rise in the tire world, has not been backward in supplying the army and navy and other branches of the national service with human material. The following are the names of some of the men who have joined the service: Frank Masden, Herbert Wright, Reese Harris, Walter Meyers, Leon Grabill, Lawrence Boyd, Howard Price, Edward Dyers, Dudley Smith, Frank McCray, Robert H. Hawley, Clell Cannon, Harold Boak, Ivan Shanafelt, Lee O. Miller, F. E. Colbourn, Wesley J. Wilson.

The Mason Tire & Rubber Co. recently erected a service flag with the full ceremony of flag raising as observed at military posts. The entire factory and office forces were present, and it was a most impressive occasion.—The Mason Tire & Rubber Co., D. J. T. Kennedy, Advertising Manager.

Dance While You Wait

Editor MOTOR WORLD: I have taken on Victrolas, carrying a complete line and 4000 records. This draws a class of people who never before visited my place of business. The center of the salesroom is used for dancing and, believe me, it has made a hit. When people call for work to be done the ladies seem to enjoy themselves and I get some of their money both ways. A fine business, and one that is sure to prove satisfactory to anyone who has a nice place—a good floor and a young lady of musical taste will get 'em going. It certainly has proven very nice for me.—Roscoe Benjamin, Winsted, Conn.

Can You Make a Statement?

Editor Motor World: Concerning an article in the Motor World of recent date about making a statement to the bank, I wonder if it would not be a mighty good thing for a great many of us if Motor World would publish an article on "How to Make a Financial Statement."

I am enclosing copy of a statement as made by a friend of mine, and am wondering if it would not be a good idea to use this and criticise it in the article.

Your article in the Dec. 19 issue on "Getting the Cash" was a corking good one. The Rockford dealers are having a meeting this week Friday, and I believe that at least eight or nine of the garages will at that time go onto the cash basis. —Jud S. Joslyn, Joslyn Automobile Co., Rockford, Ill.

Eleven Grossman Men Gone

Editor Motor World: The following men from our organization have recently joined the Army and Navy: John Caputo, Peter Heinz, J. Fisch, A. Gluckman, M. A. Lazarus, N. Macaluso, M. S. Rosen, R. R. Rosenquist, R. Roemaet, M. Schwartz, C. Zalamsty.—Emil Grossman Mfg. Corp., Emil Grossman, President and General Manager, Brooklyn, N. Y.

Fort Dodge Patriotism

Editor Motor World: In regard to the show at Fort Dodge. In this connection beg to call your attention to the enclosed reprint which tells the story. (Reprint states Fort Dodge will hold no show and has invested in Liberty Bonds the $10,000 it would have spent on the show.) Will say further that we have just received a splendid letter from the Treasury Department thanking our association for the stand they have taken.

For a time I felt that the move was a wise one from a business standpoint but it looks now as though the dealers would be able to get all the show stuff they wanted, although transportation conditions are not good. There is a tendency on the part of everybody to worry about business, but when you come to figure it up practically everybody has done well during the past year and there is still business in sight for 1918.

We are getting new prospects every day who state that they are going to "buy in the spring." This "buying in the spring" proposition has got to be a mania with the average Iowa farmer.

He figures that there will be some dealer somewhere who will be hungry enough for business to make him the old price. In the past he has usually been able to put this over. I don't know what will happen this year, but from my observation the price cutter is not as numerous as he was a few years ago.

We here feel lost without our show, but at the same time we are satisfied with the action taken, and we are all going out to help boost the Des Moines show.—Fort Dodge Auto Dealers' Association, A. C. Heath, President, Fort Dodge, Iowa.

STATEMENT OF THE BLANK AUTOMOBILE COMPANY, DEC. 1ST, 1917

Assets

Accounts receivable	$12,000.00
Car deposit	500.00
Notes receivable	12,500.00
Merchandise—new cars	16,500.00
Merchandise—accessories	2,250.00
Merchandise—car parts	2,500.00
Merchandise—tires	9,500.00
Merchandise—oils	400.00
Equipment	3,000.00
Buildings	13,750.00
Land	10,000.00
	$82,900.00
Cash in drawer and in bank	550.00
	$83,450.00

Liabilities

Accounts payable	$9,300.00
Sub-agents' deposits	3,450.00
Notes payable	28,000.00
Payroll	600.00
Reserved for taxes	600.00
Real estate mortgage	8,000.00
Accrued interest	171.25
	$50,121.25
Total assets	$83,450.00
Total liabilities	50,121.25
Unincumbered assets	$33,328.75
Less capital stock	15,000.00
Surplus	$18,328.75

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The RETAIL NEWS

NORTHWEST

J. M. Rutt, Brainard, Neb., has bought the garage of J. P. Evans.

Adams Brothers, Edgar, Neb., have leased the Thompson garage.

Sol Cressman, Fairbury, Neb., has bought the garage of Dwight Young.

W. J. Scoutt and J. R. Betts, Kearney, Neb., have bought an interest in the Midway garage from Roy Tonkinson.

Charles Giese, Nelson, Neb., has bought the interest of his partner, Alphus Deyo, in the Sunflower garage.

Ralph Bailey, Shubert, Neb., has bought the Auburn Tire & Rubber Co., Auburn, Neb., from Dale Leeper.

H. W. Cuddeford, Chappell, Neb., has opened a repairshop in connection with the Chappell Auto Co.

A. T. Dunman, Hartington, Neb., has bought the Saxon garage.

Rollin Johnson, Huntley, Neb., has bought the garage of Charles Thomas.

Charles Ewing, Broadwater, Neb., has leased the old City garage.

G. C. Chadderdon, Cambridge, Neb., has bought an interest in the South Side garage.

William Schneider, Falls City, Neb., has bought the Miller garage at Verdon, Neb.

Miller & Greely, Holbrook, Neb., have bought the garage of Wesley Naugle.

Ralph Robinson, Central City, Neb., has bought the garage of Jones & Kelley.

Ben Johnson, Wausa, Neb., for several years employed at the Larson garage, has bought the Auto Shop.

John Pattie, Omaha, has bought the Glenwood Auto Co. garage, Glenwood, Iowa.

Ralph Ramsey, Beatrice, Neb., has bought the G. O. Rains garage at Sixth and Market Streets.

Crumbliss-Van Dorn Auto Co., Omaha, distributer of the Velie and Monroe, has taken over the business founded by the late L. E. Doty.

Gates Half-Sole Tire Co., Omaha, has been opened on Motor Row. E. M. Shepard is manager.

Goodwin & Son, Hildreth, Neb., have bought the New & Williams garage.

Western Motor Car Co., Omaha, has moved to the old Overland quarters.

Trawver Auto Co., Omaha, has moved to 1910 Farnam Street.

Elmer and Edwin Sandheim, Albert City, Iowa, have bought the Service garage at Marathon, Iowa, from George Anderson.

Henry Fox, Centerville, Iowa, has bought the garage of Charles Cline.

W. H. Smith, Marshalltown, Iowa, has bought the garage of Charles Gallentine.

Fred Woodard, Shenandoah, Iowa, has bought the interest of John J. Gilmore in the Woodard Garage Co.

O. B. Eliason and Lawrence Johnson, Crooks, S. D., have bought the garage of A. Sandberg.

Chris Reichel, Herrick, S. D., has bought the garage of the Sieler-Horst Co.

Rex Stevens, Vermillion, S. D., has bought the accessory department of the Ketchum Auto Co.

James Coats, Cedar, Ia., has bought the interest of his partner, Chester Davis, in the Coats & Davis garage.

Willis Woods, Cedar Falls, Ia., has bought the Cedar Falls Garage Co. from Chris Oleson and Elmer Rasmussen.

George Shelledy, Bayard, Neb., has bought the Osborne-Waitman garage.

John Vandeveer, Cedar Rapids, Neb., has bought the Primrose garage from B. E. Farley.

Frank J. Ives has bought the interest of his partner, James Michaelson, in the garage at Tilden, Neb.

D. W. Pumroy, Riverton, Neb., has bought the garage of Edward Simington.

H. E. Ouderkirk has leased the Lincoln Highway Garage at Silver Creek, Neb.

John Raders, Dallas, S. D., has sold his garage.

W. J. Scoutt, Kearney, Neb., has bought the Gergen Garage.

C. M. Juhnke, Fairbury, Neb., has opened a new service station for storage batteries in the building formerly occupied by Claude Lambert.

P. J. Calligan, West Bend, Iowa, has sold his garage to A. B. Colgan and Gene Graham.

Donn Fickell, Stockton, Iowa, has bought the Marion Munson Garage.

Harold Emigh, Fonda, Iowa, has sold his interest in the Emigh and Thomas Motor Co. to his partner.

New Garages

J. S. & Joakim Hammer....Maddock, N. D.
Chas. W. Walker Garage Co.....Omaha
Richard Fiedler.....New Leipsig, N. D.
Frank Hubbell.....Dunn Center, N. D.
Alfred Jorve.....Halstad, Minn.
Barton & Lund .....Boulder, Mont.
M. F. Sullivan .....Mankato, Minn.
Fred C. Selzer.....Mediapolis, Iowa
A. M. Kindwall.....Storm Lake, Iowa
Standard Oil Co. (Filling Station).Osage, Ia.
McBridge and olger.....Muscatine, Iowa
Abell Tire Vulcanizing Co...Rockwell City, Ia.
Russell Garage.....Des Moines
William Paulson (addition) Blomington, Neb.
Master Truck Co.....Omaha
Omaha Wright Truck & Service Co..Omaha
Bert Moore .....Wilsonville, Neb.
McKinney Brothers .....Edgar, Neb.
C. C. Gilbert .....Schuyler, Neb.
Sandoz Auto Co.....Verdigre, Neb.
L. E. Jones.....Hartington, Neb.
Ford Garage Co.....Silver Creek, Neb.
Hinshaw-Johnson Motor Co...Norfolk, Neb.
Harry Tripp .....Kent, Iowa
Snyder & Kayser.....Webster City, Iowa

MIDDLEWEST

The Schneidewind & Zehms Motor Co., Sheboygan, Wis., has moved into its new building at South Fourteenth Street and Indiana Avenue.

Edward and Albert Jarvis, Oconto, Wis., have purchased the Clark garage, including stock and equipment, from the Oconto Falls Motor Co. and will continue it as a garage and repairshop.

Sweet & Piedt Automobile Co., Benton Harbor, Mich., has remodeled its salesroom and garage on Elm Street.

Ed Sprague & Son, Lake Odessa, Mich., have purchased the Wm. Bennett Co., and will continue the supply business and repairing.

The Michigan Auto Co., Houghton, Mich., has moved to its new garage and office building on Sixth Street. The company handles the Chalmers and Saxon.

Sperry & Scott's Repair Department, in the Three Rivers garage, Three Rivers, Mich., will be conducted by Sperry alone.

Waddell, Gono & Moore, Overland dealers, Big Rapids, Mich., has taken over the interest of Walter Rondahl in the firm of Moore & Rondahl.

Victor Erickson, Stambaugh, Mich., has opened a garage and repairshop with the Iron country agency for Dodge cars and Harley-Davidson motorcycles.

Andrew Dooley and L. D. Cool, Hastings, Mich., have purchased and are remodeling the Lawrence Service garage.

Rudd Motor Co., Plymouth, Ind., hat moved to a new 3-story building.

New Garages

Black Auto Co.,
313 North Eighth Street, Sheboygan, Wis.
Vern Loomis .....Olivet, Mich.
Keel & Feek .....Allegan, Mich.

SOUTHWEST

Edward Parker, Fort Scott, Kan., will move his garage to the Hanna Building, which has been remodeled.

C. O. Williams, Howard, Kan., has moved his garage business to Tulsa, Okla.

Luther-McCoy Motor Co., Dodge City, Kan., has bought the repairshop of W. R. Archer, and installed its equipment in the Luther-McCoy garage.

Charles Keepers, Olathe, Kan., has moved his supply store into the Weaver Building.

Clyde Thoren, Westmoreland, Kan., has bought the Goff White Way garage from Clifford Jerome.

Love Brothers & Essex, Douglas, Kan., have moved their repairshop to the Knote Building.

Charles L. Guerin, Jetmore, Kan., has opened a repairshop in the Guthrie Building.

G. A. Probasco, Stockton, Kan., has moved his repairshop to quarters in the Stockton Cooperative garage.

E. D. Ackerman, Cherryvale, Kan., has bought the garage of Chester Francis.

Walter Schlade, Manhattan, Kan., has moved his repairshop to the Whitelock garage.

Floyd Barrick, Coffeyville, Kan., has bought the interest of Richard Barnett in the B. B. garage.

Fred Horn, Glasco, Kan., has leased the Robertson garage, Simpson, Kan.

A. P. Turner and J. C. Bartlett, Arkansas City, Kan., have bought the garage of the Cowley County Motor Co.

Boyles & York, Pittsburg, Kan., have bought the garage of Van Hoy Goodwin.

Roy Knight, Stockton, Kan., has bought the Stone garage from G. A. Probasco.

R. L. Williams and W. E. Marvel, Wichita, Kan., have bought the H. C. Reser Automobile Co. The new firm will be styled Kansas Truck and Tractor Company.

Walter Auto Co., Kingman, Kan., has been sold to C. M. Jones.

Jack Gay, Wichita, Kan., has bought the M. D. Johnson garage.

Dale Sales Co., Garden City, Kan., has been sold to Webb & Armstrong.

Harold Nasco, Sheldon, Kan., has opened the Double Tire Co.

Reed & Shafer, Atwood, Kan., have leased the repairshop of the Northwest Motor Car Co.

L. L. Parrish Motor Co., Larned, Kan., is remodeling the Studebaker garage.

Walter Harris, Eskridge, Kan., has moved the H. & S. garage to larger quarters.

J. L. White, Topeka, and E. W. Hill have bought the Hammett & Griffith garage.

O. J. Church Motor Co., Woodward, Okla., has moved to a new building.

Ed Burch, Lehigh, Okla., has leased the City garage.

Mart Quillen, Wakita, Okla., has bought the garage of D. C. McIntyre & Son.

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Hausam Bros., Tulsa, Okla., have sold their business to Campbell & Kesseling.

Homer Compton, Fairview, Okla., has sold the Orient garage to Emil Butler.

W. D. Shepler, Pawnee, Okla., has bought the Oklahoma Tire and Equipment Co. from Henry Wilson.

Kincaid & Vaughn, Henryetta, Okla., have opened under the style Kincaid-Vaughn Motor Co.

E. M. Chapman, Tishomingo, Okla., has bought the McSwain garage.

Texas Battery & Ignition Co., El Paso, has moved from Texas Street to 121 West San Antonio Street.

Williamson Motor Car Co., San Antonio, has moved into a new building.

Charles Goodson, Carrollton, Mo., proprietor of the Motor Car Repair Co., is remodeling the Star Building as a new repairshop.

Robert Gibson, Blackwater, Mo., has bought the garages of Joseph Fisher and Lee O'Neal. The latter place will be used for storage.

Viets & Harms, Cole Camp, Mo., have leased the garage of J. H. Frederich.

Mark Feltis, Richmond, Mo., has bought the garage of M. Shirley.

Samuel Dysard, Maitland, Mo., has bought the garage of J. B. Burchyman.

J. A. Jones, Lamar, Mo., has bought the garage of S. Stonum.

Pemiscot Motor Car Co., Caruthersville, Mo., has moved into its new building.

O. B. Tindel, Hamilton, Mo., has opened a steam vulcanizing shop.

St. Joseph Motor Co., St. Joseph, has moved to its new quarters at 1221-27 Frederick Avenue. C. C. Tanner is manager.

L. E. Finnell, Paris, Mo., has bought the Smith-Peck Motor Co. garage.

New Garages

Elmer Karlson .....Harris, Kan.
George McCall .....Great Bend
J. P. Klamm.....Paola, Kan.
R. A. Northrop.....Great Bend, Kan.
M. D. Richetts.....Independence
R. D. Joy.....Caney, Kan.
C. E. Page.....Chetopa, Kan.
Packard-Missouri Motor Co.....Wichita
Wilson Garage Co.....Ft. Townson, Okla.
J. H. Swafford.....Henryetta, Okla.
Scott Auto Repair Co.....Okmulgee, Okla.
O. N. Buchanan.....Stroud, Okla.
F. A. Black.....Cameron, Tex.
T. W. Duncan.....Range, Tex.
Nagel Motor Co.....Guero, Tex.
Bridges & McDough.....Howe, Tex.
P. A. Smith.....Verona, Mo.
C. W. McClintock.....Eminence, Mo.
Delko Garage.....St. Louis

MOUNTAIN

E. W. Sharp has installed a branch vulcanizing plant at Caspar, Wyo.

Bennett Bros & Anderson have bought the Winger Bros.' Garage and the Merion & Foote Garage, Hugo, Colo.

New Garages

Ford Auto Sales Co.....Fowler, Col.
Bessemer Motor Co.....Pueblo, Col.

SOUTH

B. B. Kent, Americus, Ga., has reopened his repairshop on Lamar Street.

Criswell's Garage, Macon, Ga., has added a vulcanizing plant.

Claude Mauk & Co., Americus, Ga., have opened a repairshop on Jefferson Street.

CANADA

R. Phillips, Winnipeg, who has been doing a general supply business, has formed a partnership with George Houghton. The new firm will be styled Phillips & Houghton, and will occupy a building now being erected opposite the Grain Exchange.

Harry Parsons has opened a new accessory supply station on Edmonton Street, Winnipeg. The store will also be equipped as a service station for battery charging and repairs.

Getting a Catalog Read

This Book is Presented No. 21

To Mr. Ray H. Sherman

Town New York City

State N.Y.

This Catalog has been compiled and arranged by this Company at considerable cost, for the benefit and convenience of our customers exclusively. We earnestly request that you use it for your own convenience, and not allow anyone to purchase it at any price, or take it from your premises.

THE DINE-DeWEES CO.

PLEASE DETACH HERE. FILL IN AND MAIL RETURN CARD BELOW

THE DINE-DeWEES CO.
Canton, Ohio

Jan 2 1918

We have received your Automobile Accessories Catalog No. A-18, and will keep it for our own exclusive use.

Signed Ray H. Sherman

Catalog No. 21

Firm Motor World

Address New York State N.Y.

IMPORTANT—Return this card and you will receive revised PRICE LISTS

THE DINE-DeWEES CO., a jobber in Canton, Ohio, makes sure its catalogs get to the right place by pasting this return card inside the front cover. The lower half is not pasted down and is to be torn out and mailed back to Dine-DeWees. With this catalog the company sends a letter calling attention to certain features in the book, one of which is a statement that it is "Exclusively Wholesale, Dealers' Prices to Dealers Only, and Positively No Goods Sold at Retail."

More Valuable Than Sugar

Editor MOTOR WORLD—*We have missed getting our copy of* MOTOR WORLD *for two weeks, last week and this, and we prefer doing without sugar in our coffee to missing this weekly magazine, which we have been taking for two years. Please send the last two issues. We sent our renewal several weeks ago.—M. O. SIMPSON, ROYAL SALES CO., Front Royal, Va.*

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Wisconsin Asks:

Can We Get Enough Cars?

Her Dealers Sold 49,000 More Cars in 1917 Than in 1916—They're Out for as Big a Gain in 1918

MILWAUKEE, Jan. 19—This is the most momentous year in the history of the motor car trade of Wisconsin, as it is for the entire industry of the United States.

With the best year on record behind them, Wisconsin distributers and dealers, gathering in intimate conferences at the tenth annual Milwaukee show, which is the yearly opportunity for frank and full discussion and interchange of ideas and opinions, seem to hold but one thought—

Will we be able to obtain enough cars to fill our requirements?

It is not a question of a market, or ability to sell that market, but a problem of furnishing enough stock to supply its demands.

Business conditions similar to those which made 1917 Wisconsin's greatest motor year presage an equally great new year, or a greater one, so far as the number of prospective buyers of motor vehicles is concerned.

The public purse still is well filled. The inclination to purchase motor cars is stronger than ever, in spite of advancing prices.

Watch Out for a Shortage

It is a conservative statement to say that every motor vehicle that the manufacturers put into Wisconsin during 1918 will be eagerly absorbed, and there will remain an aching void unless the number offered is not greater than it was in 1917.

At this time the Wisconsin average is approximately one car to every seventeen inhabitants, population being figured at 2,800,000. In 1916 the number of cars averages one to every twenty-four inhabitants. This is not the best showing made by any State in the Union, but it indicates that the growth of the use of motor vehicles in Wisconsin is a healthy one and selling is not being overdone by any means, with no possible likelihood of saturation of market.

Talks with leading distributers and dealers at the Milwaukee show serve to indicate that Wisconsin's record in 1917 represents an achievement. In the face of some of the greatest difficulties that the motor car trade has ever been obliged to meet, a total of more than 10,000 cars were sold in Wisconsin than predicted at the beginning of last year. The conditions under which distributers and dealers worked during the latter part of the period are too well known and understood to make explanation necessary. Yet the total business of practically every dealer showed a very appreciable gain over 1916.

At the 1917 Milwaukee show representative men in the Wisconsin trade prophesied that the State in 1918 would take at least 38,500 cars, which was figured to mean that business would have to be increased one-third over 1916. A few men then characterized as ultra-optimists predicted that the State would take as high as 40,000 cars in 1917, but an average of predictions placed the probable number at 38,500. To-day this figure looks exceedingly small, considering that the actual absorption reached 48,894 cars.

She Has 200 More Dealers

Nearly 200 dealers were added to the ranks of the Wisconsin trade last year on the face of figures of dealer organizations. In 1916 the number of licenses issued to dealers was 1970, and last year it was 2167, a gain of 197. Dealers' license figures include manufacturers of passenger and commercial cars, but this fact does not materially alter the situation with respect to net gain in the number of dealers. In six years' time the number has doubled.

On the basis of 2167 dealers, it is figured that every dealer in Wisconsin sold on an average of 22.5 cars during 1917, while in 1916 the ratio was one to eighteen.

Because of unprecedented conditions and the kaleidoscopic changes that are taking place every day, it is not so easy for the Wisconsin trade at this time to make more or less accurate predictions on 1918 business as it was in former years. As already indicated, the trade feels that the number of cars produced and allotted to Wisconsin this year will not suffice to cover the demand. In the absence of any definite knowledge as to the extent of production, it is extremely difficult to estimate how many cars Wisconsin will take. All things being equal, however, predictions made at the Milwaukee show this week quite generally agree that the State will take 35,000 cars in 1918, and more if they are available.

The office of the Secretary of State at Madison, which is in charge of motor registry, is counting upon an issue of 200,000 licenses to owners this year, and its contract for the supply of plates fixes that figure for deliveries. That would indicate a gain of 35,000. The Secretary of State's estimates always have been found to be considerably lower than actual needs, and they probably will be this year. The office also is figuring on an issue of 1800 dealers' licenses, which would be about 350 less than in 1917. But it never has been guilty of over-estimating in this direction either.

Save only for the natural hesitancy that accompanies a state of war, but which has gradually been dissipated, conditions in Milwaukee and throughout the State are such that the year seems to be bound to be the best that the trade has yet experienced. The past year unquestionably was the most profitable of all and the influence of such a condition never is immediate. For this reason it is the confident impression of dealers that the results of the great year of 1917 must be reflected throughout 1918.

Bank Clearings at High Level

For instance, bank clearings at Milwaukee last year reached the unprecedented figure of $1,300,560,926 compared with $1,042,716,296 in 1916 and $836,384,564 in 1915. December was the largest month of the year in this respect. The total aggregate resources of national and state banks in Wisconsin at the close of the year was $617,775,758, a gain of more than $66,000,000 over a year ago. During the last four months of 1917 Milwaukee bank deposits alone

Wisconsin Registration for Six Years

	1917	1916	1915	1914	1913	1912
Motor cars	164,531	115,637	79,791	53,161	34,646	24,573
Dealers	2,167	1,970	1,582	1,202	1,393	1,052
Increase in motor cars	48,894	35,846	26,630	18,515	10,068	....
Percentage of gain	42	44	50	53	45	....

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increased $6,212,000 and reached the enormous total of $141,036,000, never before approached. The total resources of Milwaukee banks increased $14,000,000 in the same time, and stood at $176,000,000 at the close of the year.

The aggregate value of manufactured products of Milwaukee industries during 1917 is figured at $595,520,102, which is a gain of nearly 25 per cent over 1916. Wages paid during the year increased 16 per cent. Milwaukee is essentially a manufacturing city, in which the iron, steel and machinery industries predominate, and it has enjoyed exceptional prosperity. The rest of the State, which is essentially agricultural, has accrued great financial benefit and prosperity from the high prices received for cereals, dairy products, live stock and other products of the soil. The buying power of the people has never been so great, even in the light of heavy demands in taxes, excises, investments and contributions for the purpose of prosecuting the war to a victorious and successful conclusion.

So the situation may aptly be summarized in these brief words: If the manufacturers of motor vehicles will produce the goods, Wisconsin will take all it can get.

Show Draws Real Buyers

The outstanding feature of Milwaukee's tenth annual show is the fact that the attendance so far has consisted principally of persons vitally interested in motor cars as buyers rather than as sightseers.

The crowds have not been quite up to the mark for the corresponding days of 1916, when all records were broken, but it would hardly be expected that with 12,000 to 15,000 young and middle-aged men of Milwaukee at the front or in camps, the attendance at the show could establish new records. Nor are the extreme weather conditions that have prevailed for ten days or longer conducive to strong attendance. But there is no question that the "quality" of the crowds this year is far and away above that of former years, with particular respect to the sound and solid interest displayed in the 1918 offerings of passenger and commercial cars, accessories, supplies, etc. It must not be understood that the attendance has shown a decided falling off, for that is not true. The crowds, as a matter of fact, are much larger than anticipated by the Milwaukee Automobile Dealers, Inc., which again is staging the exposition.

The tenth Milwaukee show could hardly be bigger than past events, because the Auditorium is a concrete building and not elastic. But it is by far a better and more interesting exposition than has ever before been presented. In one way the show is larger, for the very limitations of the show building, which prevent it from being bigger in the general sense of the term, have made it necessary for the M. A. D. to divide the passenger and the commercial car sections because of the lack of room to hold both at the same time, as heretofore. Consequently, the first seven days, Jan. 16 to 22, are being devoted exclusively to passenger cars, and the last three days, Jan. 23 to 25, to commercial cars. Even then the demands for space have been so great that all available area is required for exhibits —and more.

Decorations Cost Only $5,000

By an expenditure of more than $5,000 in decorations, scenery, etc., the M. A. D. this year has been able to offer a show which in beauty and attractiveness equals if not excels even the best efforts at previous New York and Chicago shows. The Auditorium lends itself much more readily to artistic decorative treatment than either the old Hippodrome or the Coliseum and doubtless is a truer show building than the Grand Central Palace.

Forty-six Milwaukee dealers, practically all of them distributers in Wisconsin and Upper Michigan or lesser territory, are showing cars representing seventy-eight factories. Exhibits are limited to five models per exhibitor because of limitations of space. This makes a total number of 230 cars or chassis displayed in the passenger car section for seven days. There are not so many cut-open or skeleton chasses shown as last year, but this is due largely to the demoralized condition of traffic resulting from the great blizzard of Jan. 11 and 12. Numerous show cars still are in transit, even some shipped by express. They are arriving as the snow blockades are being overcome.

Added interest is lent by a style revue, put on every afternoon and evening on the main arena stage by arrangement with Gerretson Co., one of Milwaukee's leading women's wear houses. Fifteen models brought from New York show the latest garments, and the men as well as the women form a huge crowd in front of the stage whenever the revue begins. Instrumental music, of course, is furnished in good measure, a brass band playing in the main arena and orchestras in the smaller halls and rotunda. Vocal entertainment is also provided afternoon and evening. These features do much to keep interest strong and the crowds moving.

How the Show Was Advertised

The drastic fuel administration order announced Wednesday night at first was construed as possibly applying to the show during the five-day period prescribed for closing industrial plants, but it was soon determined that the exposition would not be affected. However, it is likely that the show will not be open on Monday, although the M. A. D. believed that its show could not be classed as an entertainment, but an industrial exposition. However, it was stated that the association would cheerfully abide by any regulation promulgated by the Government.

To introduce and advertise the show, the association is publishing a series of ten full-page advertisements in the leading afternoon and morning papers of Milwaukee. These were prepared by E. LeRoy Pelletier, for many years one of the best known advertising men in the motor car industry. The first ad was published on Jan. 14, two days before the show opened. The final page will be run Jan. 24.

It is these ads which are largely responsible for the earnestness of the crowds attending this year's show, already characterized as an outstanding feature. Nothing excepting a view of the show itself has done so much to improve the state of the public mind as the Pelletier copy. The first ad was a general announcement of the show, and it was followed by nine distinct pages of preachments covering various phases of the industrial situation at this time with special reference to the motor vehicle.

What the Ads Explain

The purpose of the preachments was stated as follows:

"We will state in simple, forceful terms some sound facts on the subjects about which there has been much confusion—much misunderstanding—and a consequent indecision and inactivity in all lines of business, the motor car included.

"Much false logic—more plain sophistry—and a lavish application of harmful, psychological suggestion have been disseminated, most of it by persons whose intent was of the best but whose knowledge of economic principles was limited.

"The handling of economic subjects by writers is a good deal like the preaching of socialism.

"We are all socialists potentially—all seeking the practical way to make the World Safe for Democracy, economically as well as politically.

"But when the effusions of socialistic speakers and writers filter through the minds of the ignorant or the careless reader it frequently comes out in the form of anarchy or nihilism.

"What their ignorant reader decides is entirely different—and often is the antithesis—of that which the intelligent reader derives from the same words.

"And so we find much misunderstanding as to what is our duty in this wartime; where we must conserve, where spend lavishly—in order to accomplish that which is our supreme desire, namely, to defeat the enemies of liberty—to win the war.

"Read the series—it will set you thinking, and maybe set you right on some points that have been hitherto obscure to you."

The subjects of the nine preachments and dates of publication are: Jan. 15, "Inevitable—A Shortage of Motor Cars in 1918"; Jan. 16, "As We Said Yesterday, Prices Will Be Higher"; Jan. 17, "There Is Not—Will Not Be—a Shortage of Gasoline"; Jan. 18, "Are You Practising False Patriotism?"; Jan. 19, "Is the Motor Car a Non-Essential?"; Jan. 20 and 21, "We Are an Extravagant People—We Americans—Thank Heaven!"; Jan. 22, "Some More on That Subject of Perverted 'Patriotism'"; Jan. 23, "War Always Brings Prosperity During the War—and Afterward"; Jan. 24, "The Farmer Owes Much to the Motor Vehicle."

The ten full pages were published at the expense of the M. A. D. and supplanted the usual volume of display advertising of individual dealers during show periods of past years. Thus public attention was effectively concentrated; the "copy" was exceptionally forceful, and much economy accrued to the individual dealer.

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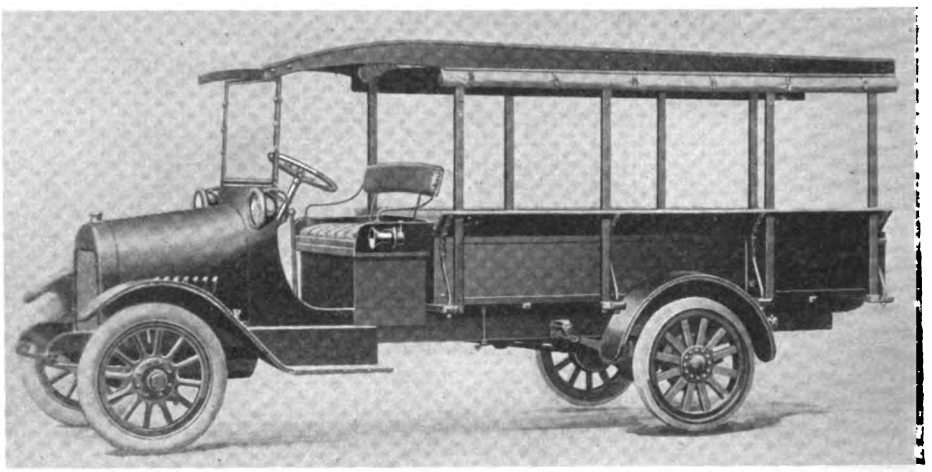
Chevrolet 1-Ton Truck to Sell for $1,245

Worm-Driven Model With Full Electric Equipment

CHEVROLET SPECIFICATIONS

Capacity, tons	1
Price	*$1,125
Wheelbase, in.	125
Tires, front	31 x 4 pnu.
Tires, rear	32 x 4 sol.
Bore, in.	3 11/16
Stroke, in.	5¼
N. A. C. C. hp.	21.76
Speed, r.p.m.	....
Speed, m.p.h.	25
Gear-ratio in high gear	7 to 1
Final drive	Worm

*With body without top, $1,245; with eight-post top and body, $1,320.



The new Chevrolet 1-ton truck chassis sells for $1,125 and with the body illustrated at $1,320

THE latest of the passenger car companies to meet the demands from all sides for motor truck models is the Chevrolet Motor Co., which has just brought out a worm-driven 1-tonner selling at $1,125 in the chassis, with an express body at $1,245, and with an eight-post top and body at $1,320 f.o.b. Flint, Mich.

The new truck offers the dealer a good selling proposition in that the chassis price of $1,125 is $486 under the average price of all 1-ton trucks offered on the market as of Jan. 1, 1918. Furthermore, the newcomer is equipped with a unit powerplant, electric lights and an electric starter, and has a frame sufficiently long to carry a standard body with a clear loading space of 9 ft. 6½ in. and a clear inside width of 3 ft. 9¾ in. The fact that the Chevrolet company offers its truck in the chassis with an open flareboard express body or with an eight-post top and side curtains gives the dealer greater possibilities for more nearly meeting the requirements of a large number of purchasers. The large loading space of the body also enables the vehicles to be used in almost every conceivable kind of business.

The truck is fitted with a valve-in-the-head type engine with a piston displacement of 224.3 cu. in. It is mounted under a conventional hood forward of the dash and is carried on arms extending to each side of the frame. The rear end is carried on two heavy malleable iron castings hot riveted to the frame and held in place by two drop-forged U-bolts. The front is hung in shackles bolted to the motor arms and to two substantial brackets hot riveted to the frame. The cylinders are cast in block and are provided with a removable cylinder head. Lynite pistons with three rings are employed and the crankshaft is carried on three main bearings.

The engine is water cooled by means of a centrifugal pump circulating the water through a cellular type radiator with a heavy brass core and a pressed steel casting. The radiator is mounted on two V-shaped slotted steel springs bolted to the front cross member and resting on two steel washers. A 15-in. pressed steel fan is employed and is driven by a V-shaped leather link belt

A Zenith carbureter is used with a hot-air-jacketed intake manifold. The carbureter is fed by gravity from a 13-gal. tank located under the driver's seat. All the air enters the carbureter through a combined strangler and temperature regulator which provides a cold-air opening during warm weather. A Monarch suction governor is installed between the carbureter and the intake manifold to limit the speed of the truck to 25 miles an hour.

Ignition is by a Remy distributer. An Auto-Lite generator is employed and begins to produce a charging current at a vehicle speed of about 6 miles per hour. The electric starter is also an Auto-Lite product. It is mounted on the rear motor arm and operated through a Bendix drive.

From the engine the drive is taken through a cone clutch with a leather facing and thence to a three-speed selective gearset. The gearset is carried on a frame bolted to the flywheel housing, and can be quickly and easily removed, being located directly under the driver's floorboards.

From the gearset the drive is taken through a seamless steel tube propeller shaft with three universal joints to the worm-driven rear axle, of which the worm and wormgear are made by the Cleveland Worm & Gear Co. The rear axle housings are of malleable iron and the axle shafts are of the semi-floating type.

Hotchkiss drive is employed, both the torque and propulsion being taken through the springs. Two separate sets of brakes of the internal-expanding type are located on the rear wheels. Each brakeshoe is 14 in. in diameter and 2 in. wide. Both sets of brake rods are provided with turnbuckles conveniently located to take up all brake wear. The frame is of open-hearth rolled steel channel 4 in. deep, and is provided with three cross members.

The wheels are of the artillery type and have twelve hickory spokes, front and rear. The front wheels are fitted with Timken roller bearings and are provided with malleable iron hubs with flanges of pressed steel. For greater speed, pneumatic tires are employed in front and solids in the rear. Left steer and center control are employed.

The engine hood is of heavy sheet steel with three hinge rods. An anti-squeak is used on both ends of the hood to prevent rattling, and the sides each have seven louvres for better air circulation. The cowl is also of heavy sheet steel riveted in place and carrying the instrument board, on which are mounted the speedometer, carbureter choke, ammeter, oil pressure gage and the lighting and ignition switch. Passenger type front and rear fenders are used. They are of pressed steel in one piece and are crowned and attached to the frame side members by a heavy pressed steel V-section iron with a heavy sheet steel apron extending to the frame and completely enclosing the sides and protecting the runningboards from mud and water.

Chevrolet General Offices Moved to New York

NEW YORK, Jan. 19—The Chevrolet Motor Co. has moved its general offices to Broadway and Fifty-seventh Street, New York. The New York store will be located in the same building.

Ohio After Short Measures

COLUMBUS, Jan. 21—P. Gault, head of the State Dairy and Food department, which has charge of weights and measures, has filed forty affidavits against oil companies doing business in Cleveland, Akron, Mansfield, Toledo, Canton, Marion and Columbus. The affidavits charge shortage in measure in selling lubricating oils.

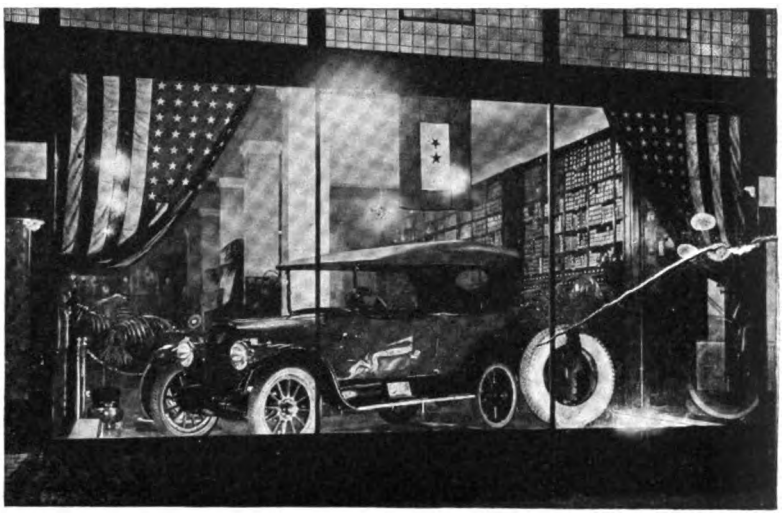
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Where One Jobber Starts the New Year

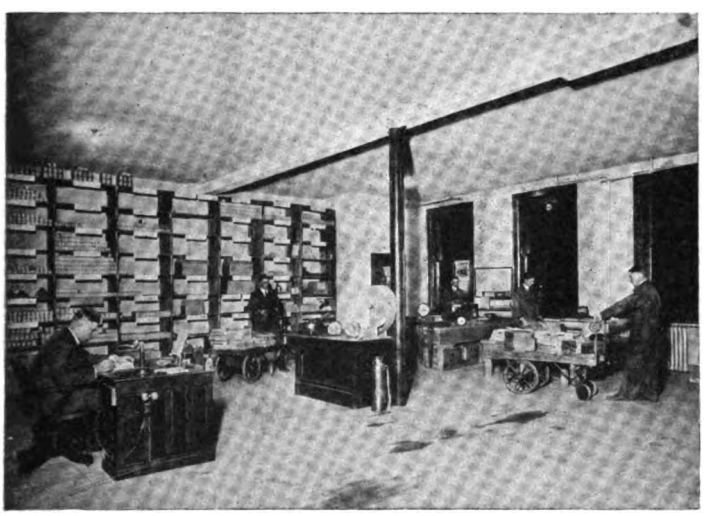
The Beers Brothers Co., Oil City, Pa., a jobber, starts 1918 in a new home that is modern throughout



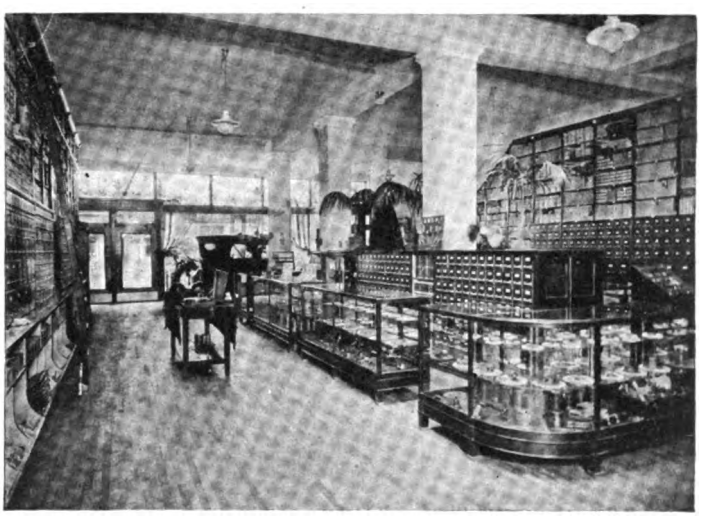
It can't be seen here, but across the building over the front of the doors it says: "Henry I. Beers Building, 1877-1916"



This is a closer view of the front window shown at the left. The service flag has two stars. The car is a Pilot



The shipping department is well systematized and is so operated that orders go out in a minimum of time



This is the interior. It looks like "retail" but is "Wholesale only." Palms and ferns help out a lot



The reception room



Secretary W. S. Van Horn's Office



Treasurer P. C. Beers' office

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Fuel Order Shuts Up Factories

(*Continued from page 9*)

In saving of coal the 5-day shutdown of the Ford company will mean about 50 carloads, or 12 carloads a day. The normal consumption is from 17 to 18 carloads per day.

The number of men thrown out of employment in Detroit alone is approximately 200,000. These men will not be paid during the lay-off period so far as is known by any of the companies, although one or two still have the matter under consideration. To give an idea of the number of men affected by the order, the Ford company has laid off temporarily 35,000 men, Willys-Overland 8000, Buick 12,000, Studebaker, Detroit plant, 3000, Continental 3000, Cadillac 6000, Packard 8000, Timken, both plants, 5000, and Hupmobile 12,000.

Some of the companies making motors and feeding back the power developed by these motors on test back into the lines really lose coal instead of gaining it by the closing order. A rough estimate of the coal saved by some concerns is: Hupp, 10 tons a day; Packard, 35 tons a day; Studebaker, 150 tons a day; Timken, 100; Buick, 250, and Willys-Overland, 200.

Dealers, Too, Shut Up Shop

Service Stations Plan to Make Up Time by Starting Earlier and Closing Later

NEW YORK, Jan. 21—After the first confusion following the receipt of the Garfield order regarding industries, dealers throughout the United States are proceeding on what is practically a uniform plan, although the plan was laid out without any organization between different cities.

In New York the dealers decided that during the 5-day period, with the exception of Monday, they would shut down so far as possible. They would use no more elevators than were absolutely necessary for getting cars in and out of service stations; they would cut off heat wherever possible and to as low a degree as possible, and would cut down light as far as possible.

Some of the service stations use a very limited amount of power to operate the few grinders, drill presses and other machines that are necessary, and it was decided to do without these if possible. It was decided that it might be possible to operate salesrooms without much light or heat. Besides these resolves, several service stations practically closed down Saturday, finding it very difficult to run at all under these restricted conditions.

The dealers in Philadelphia curtailed there as far as possible, but nevertheless kept open; everywhere, however, dealers agree that it will be necessary to close up on Monday.

A number of automobile shows come within the restricted period. The Philadelphia show is being held as usual, the only large show that has been called off being that in Rochester, where the dealers were all ready to go ahead with the exhibition but decided at the last moment not to open at all. This show has been abandoned.

A number of telegrams were sent out by Motor World to the show managers.

Buffalo will open as usual and run for the full week.

Baltimore states that the fuel order will have no effect on the order there.

Bridgeton, N. J., will open the show on the date set. The salesrooms will be open as usual except Mondays, when they will close.

The Cleveland show will operate as usual. In Cleveland, Monday will be considered as a Sunday, and what amounts to Sunday operation will be in effect on that day. Inasmuch as the Cleveland show always starts on a Saturday and is open on Monday, it will be open on Monday.

In Providence, R. I., salesrooms will close on Monday as on Sunday. The show will run as usual.

In Kansas City the dealers are considering confining all advertising from this state on the show to one comprehensive campaign to boost the motor car business.

In Allentown, Pa., garages are maintaining sufficient heat to prevent damage and are eliminating every unnecessary bit of work. The show will open as usual.

In Scranton the show which was scheduled to open on a Monday will not open until Tuesday. Garages and salesrooms will keep open so far as possible with a minimum amount of heat and light.

Harrisburg, Pa., interprets the order to mean that the show must close Monday, and such will be done until the decision is changed.

In Detroit Manager H. H. Shuart says the show will observe a 9-hour rule and it may or may not close Monday. Salesrooms will close Monday and salesrooms and service stations will be open only 9 hours.

In York, Pa., the show has been postponed. Salesrooms connected with garages and using the same heating plants will not close.

Prevent Loss of Wages

One of the chief concerns of dealers everywhere has been to prevent workmen from being deprived of their wages, and in order to prevent this cutting down the suggestion everywhere is that the men work an extra hour on Tuesday, Wednesday, Thursday and Friday, and in New York City work 4 hours Saturday afternoon, which will give an extra 8 hours, thus making up for Monday.

The night before the order went into effect the White service station operated until midnight in order to give the men extra hours of labor and then cut down largely.

One of the difficulties encountered by operators of garages and service stations is that in order that there be any operation at all it is a necessity that at least one elevator be run, and this requires power. Much of the power in New York City is derived from central stations, and the New York Edison Co. stated that it would furnish power as usual and leave it up to the consumer as to whether he used it or not, the company itself declining to accept any liability in the matter.

The dealers in Newark, N. J., who have been running co-operative advertising have in this week's Sunday paper a page advertisement as to how the lost days of production due to the fuel orders are to be regained. The tenor of the ad is that these lost days must be regained through greater effort and greater efficiency, and that one of the greater efficiencies especially in transportation is in the use of motor vehicles.

Following is a letter sent out by the Philadelphia association to its members:

TO MEMBERS OF PHILADELPHIA AUTOBILE TRADE ASSOCIATION:

In order that we may uniformly conform to the regulations of the Fuel Administrator, as issued today, with regard to closing down every Monday from January 21st to March 25th inclusive, and also to assure, as far as business permits, average weekly employment to all men employed on the hourly basis, the Board of Directors of the Philadelphia Automobile Trade Association suggests that plants be worked one hour additional each day from Tuesday to Friday inclusive, and to work enough additional hours on Saturday afternoon to make up the one day lost by closing on Mondays, during the period prescribed.—A. E. Maltby, Vice-President.

New York Shuts Tight

NEW YORK, Jan. 21—A trip along the row this morning showed that in not a single instance was a salesroom doing business as usual or a service station or shop in operation.

Many doors were locked. Some offices were open for an hour or two to dispose of mail, but in no case was there light or elevator service, and there was heat only sufficient to prevent freezing of sprinkler systems or water pipes, except in one or two instances where a store occupied part of a building devoted to dwelling purposes.

Harrisburg Remains Open

HARRISBURG, PA., Jan. 21—Secretary J. Clyde Myton, of the Harrisburg Motor Dealers' Association, reports that their attorney advises that this ruling does not affect members in any way; that it is most likely made against people who are manufacturing new products; that members are allowed to keep places of business warm, customers' cars

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from freezing, and offices in livable shape, and that if workmen see fit to operate in garages, buildings or offices, heated as it is necessary to heat them for the above reasons, they are entirely licensed to do so; that the general public who store and use their cars daily have no license to be annoyed, or to assume the risk of their cars being frozen or the annoyance of them being drained.

The attorney suggests, though, that if any of the men were manufacturing tires and running a steam vulcanizer on new work, it might be advisable to close that down. This the association has instructed dealers to do.

Columbus Observes Rule

COLUMBUS, Jan. 21—A meeting of the Columbus Automobile Trade Association held immediately after the announcement of H. A. Garfield of his fuel conservation program decided to comply with the order without protest. As a result all automobile agencies, repair-shops and service stations were closed.

St. Louis Undecided

ST. LOUIS, Jan. 21—R. E. Lee, manager of the St. Louis Auto Show, has been unable to get a definite promise from the Coal Committee as to the holding of the show Feb. 18 to 23. The Coal Committee plainly hopes that the heroic measures now in force here and in other parts of the country will permit the show to take place but, the members of the committee say, much depends upon the weather and other conditions.

The Show Committee will go ahead with the plans. Announcement will be made this week on the final conclusions as to space. The present indication is that each exhibitor will be restricted to three cars and that the accessory exhibit will be placed upon the third floor of the building, with elevator service.

Baltimore Little Affected

Baltimore, Jan. 21—The fuel administrator's order almost passed over Baltimore. Only one firm, the Habershaw-Miller Co., Republic distributer, closed for the five-day period. On Saturday the Baltimore Automobile Dealers' Association obtained a ruling from the Maryland fuel administrator which allowed them to do business. In consequence a letter was sent to the trade giving the following opinion:

1. Spirit of the order to be carried out rather than the letter.
2. Sufficient fuel may be burned to prevent freezing or injury to property.
3. No objection to working provided no fuel is burned in excess of requirements to prevent freezing.

In consequence practically all of the shops had their men on the job but did not use power and only such lights as were necessary. Dealers spurred their salesmen to go ahead with outside work and thus the industry was not greatly affected.

Indianapolis Practically Suspends

Indianapolis, Jan. 21.—Work in the Automobile manufacturing and selling fields was practically suspended. The Premier Motor Corp., which is working on government contracts, is the only one in operation to-day. Nordyke & Marmon are permitted to continue only on aviation work. The plants of the Cole, Stutz, National and Empire have been closed, as are all plants in Central Indiana not engaged on government work.

Milwaukee Plants Entirely Closed

Milwaukee, Jan. 21—With the exception of the Wisconsin Motor Mfg. Co., every passenger car, motor truck, engine and parts factory in Milwaukee and vicinity are entirely closed for the five days. More than 7500 men are out of employment. The Wisconsin company closed Friday, but was permitted to open Monday to continue work on Liberty engines. All told only five or six of 2300 industries are in operation. Garages and repair shops closed tight on Monday.

Kansas City Wheels Are Turning

Kansas City, Jan. 21—No manufacturing industries have been closed here so far. Fuel administrators of Kansas, Missouri, Arkansas, Oklahoma, Nebraska and Iowa are in conference here. It is their belief that industries will not be disturbed in their states. Office buildings and retail stores are being closed.

Minneapolis Shops Close Up

Minneapolis, Jan. 21—With few exceptions all car, truck, tractor and accessory factories shut down during the five days. Tire vulcanizers, repair shops and oil stations have also been closed. The following numbers of men are temporarily out of employment: Ford Motor Co., 600; H. E. Wilcox Motor Co., 300; Wilcox-Bennett Carburetor Co., 100; Pence Automobile Co., 200; Maxwell branch, 40. Both Chevrolet and Willys-Overland branches have small forces out. The tractor concerns have about 4000 men out. The tractor men are particularly anxious over the setback the enforced holidays has brought.

All of Boston Lays Down Tools

Boston, Jan. 21—The entire motor district was closed to-day, nearly as effectively as if it were Sunday. A few places were open merely to take care of mail. Service stations and garages were allowed to keep open to repair cars and trucks at present in use. All told more than 200 dealers in cars, tires and accessories locked their doors, thus throwing about 5000 employes temporarily out of employment.

Providence Show Draws to Close

PROVIDENCE, R. I., Jan. 19—The annual show of the Rhode Island Automobile Dealers' Association came to a close here in the State Armory at midnight.

The attendance was small, only one night—Wednesday—was there anything like a real crowd. The price of admission was cut in half from last year, being only 25 cents.

Twenty-three passenger cars by 21 exhibitors, one exhibit of motorcycles, 14 exhibits of accessories, and an even dozen commercial cars by 10 exhibitors represents the varieties of makes that were placed before the public.

Will Not Move Girl's Office

WASHINGTON, D. C., Jan. 21—The plan for moving the offices of Christian Girl and the Military Truck Production Board to the Union Depot Office Building has been abandoned. Mr. Girl and his organization will remain at 1421 I Street. J. G. Utz, supervisor of inspection and engineering of the board, has removed his offices, however, from Mr. Girl's division to the Union Depot. The Military Truck Production Board, which, as was recently stated in these columns, now includes the functions of engineering and maintenance as well as production of Liberty trucks, is now known as the Motor Transport Section of the Office of the Quartermaster General.

Embargo Tidewater Shipments

WASHINGTON, D. C., Jan. 21—It is reported that the railway director at the recommendation of the Fuel Administration will place a complete embargo on all shipments of supplies to tidewater points for some time beyond the present drastic fuel order time limits, until the congestion at all of the big Atlantic ports is cleared.

Transportation Real Need

(*Continued from page* 8)

sacrifices and our work will be heralded down for ages to come.

"It is up to us to prove as American men by our work, by our staying on our jobs, by our optimism rather than pessimism, that we are worthy of the heritage we received when that flag was handed down to us to preserve and protect by our forefathers who fought the same kind of fight that we fight now to preserve it.

"So, gentlemen, do not get discouraged. We cannot win this war with crepe on our noses. We cannot win this war by going around with sad faces. We must win this war, gentlemen, with our souls.

"We have to put our souls in first.

"We have to realize that all the money we have is not worth a tinker's dam to us if we do not win this war.

"We have to put aside all our selfishness. We have to obey orders when they come. We have to counsel and advise before the orders are issued, so that they may be issued intelligently and profitably, but after they are issued, let's get down and obey them.

"We must win this war. We have to do it this way. We have to be right spiritually. We have to be right physically. We have to be right morally. We have to be right financially, and we have to be right industrially. We must have all those things.

"I do not think anybody has any right in the automobile business to feel anything but glad and happy because he is going to be allowed to continue.

"There will be no curtailment of automobiles.

"Nothing like that is contemplated, and if we would most help this Government in war work, we have got to be let alone with our potential strength of organization to do this work for it, and at the same time do our part in solving the transportation problem.

"Let us fight, fight from now on. Let no man put his heart now on any premature peace talk.

"We do not want anything but 100 per cent in devotion of souls and mind and body to the work of this country, and our praise—if there is any—we will probably never get, but our children after us will rise up to call us blessed."

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Railroad Conditions Hurt Trade on Coast

Cars Can't Be Secured by Rail and It Is Too Far to Drive from Factory and Get List

LOS ANGELES, Jan. 21—Southern California motor car dealers are optimistic over the prospects for 1918. The transportation problem is the only one causing uneasiness. If the railroads are prohibited from shipping motor cars, it will mean the end of the business in this part of the country owing to the distance from Eastern factories making drive-aways impractical. It would be impossible to dispose of a car here at anything like the list price after it had been driven overland 2500 or 3000 miles. This subject is of far graver concern than the increase in prices and war tax.

Some dealers have been entirely without cars for three weeks, and the factory gives them no encouragement. To all requests the reply is made that the manufacturers cannot get railroad cars in which to make the long shipment. At various points in the country between the factories and Los Angeles are cars in warehouse that were destined for local consumption. They were taken from the freight cars in order that they might be used for other purposes, according to explanations received here.

The number of motor trucks in the hands of dealers is very limited, and owing to the activity of manufacturers in supplying Government orders dealers are at a loss to know whether they will get any more at all when their present supply is exhausted. The only bright lining in the truck dealer's cloud is that he is able to make better selection in the sales he accepts. The buyer who pays the most cash will get the truck and the long-time payment and trade in of an undesirable used truck are being eliminated.

Tourists have been liberal buyers of passenger cars here during the winter months, and the number of the visitors who will come this year is more problematical than ever because of railroad conditions. Statements have been issued by railroad traffic managers that the tourist trade will not suffer, but hotel men say if this is so the visitors are exceptionally late coming this season. None of the big hostelries has experienced the rush for accommodations customary at this time of the year.

There is a feeling among the trade that dealers handling old, well-established lines of cars will enjoy a conservative business, although probably not so many cars will be sold. The public will be keener and more discriminatory buyers than ever before during 1918, and it is the representative of the new make of car such as would create a certain demand in itself, because of the novelty, that will have to watch both sides of the ledger. Buyers are not going to take well to uncertainties, in the opinion of the men here most experienced in the business.

Show Conflict in Columbus

COLUMBUS, OHIO, Jan. 21—Two shows have been scheduled for Columbus and the Columbus Auto SLow, which represents dealers in this city and is an organization of the dealers, is calling attention to the fact that it has no connection with the other show. The Columbus Auto Show Co. has engaged Memorial Hall for Feb. 27 to March 2. Anson D. Bernard Coates is treasurer of the Columbus Auto Show Co.

New Organization for Little Giant

CHICAGO, Jan. 21—After an existence of 9 years as a department of the Chicago Pneumatic Tool Co., the motor truck interests of the company have been taken over by a new organization known as The Little Giant Truck Co. The Little Giant Truck Co. is owned and controlled by the Chicago Pneumatic Tool Co., and the officers are the same: President, W. O. Duntley; secretary, W. B. Seelig; treasurer, L. Beardsley, and sales manager, T. J. Hudson. The headquarters will remain in the Little Giant Building, 1615 Michigan avenue.

Bloomington Dealers Elect Officers

BLOOMINGTON, ILL., Jan. 21—At the annual meeting this week of the Bloomington Automobile Trade Association officers were elected for the ensuing year as follows: President, J. E. Lockwood; vice-president, F. H. Cole; secretary, E. E. Pierson; treasurer, J. E. Clark.

It was voted to increase the charge for work by first class mechanics to 90 cents per hour, and for work by helpers to 70 cents per hour. Previously the charge has been 75 and 50, respectively. Increasing overhead expense forced the increase in charges for repair work.

Action upon the annual winter show was deferred. The dealers staged a successful outdoor show last August, with expenses about one-half that of the winter indoor show, and there is a strong sentiment in favor of another outdoor show in April.

The Bloomington association is now one year old, every motor car dealer being affiliated, and the organization has proven a great success. Due to unity of action in relation to prices allowed on used cars, each member has saved a large sum in this direction alone, while uniform prices for storage and repair charges have also proven money makers. Semi-monthly meetings are held and, following a dinner, the dealers discuss subjects of mutual interest and thresh out many problems and controversies calculated to promote the welfare of the industry.

Kelly-Springfield Milwaukee Branch

MILWAUKEE, Jan. 21—The Kelly-Springfield Tire & Rubber Co., New York, has established a branch house in Milwaukee at 426 Jefferson Street, in charge of J. A. Glassy as manager.

Twin Cities Show to Be a Mammoth Exhibit

Minneapolis and St. Paul Get Together and Will Use Twice the Space Used Last Year

MINNEAPOLIS, Jan. 21—Preparations for the Twin City Automobile and Industrial Exhibition were put in full swing to-day when at the first joint meeting in the history of the full automobile trade associations of the Twin Cities drawings were made by car and truck dealers for space in the show Feb. 2-9. Manager Walter Wilmot held the hat and Vice-President J. A. Graham of Minneapolis was judge. It develops there is to be floor space of between 250,000 and 300,000 sq. ft. as against 117,000 sq. ft. last year. Publicity is being put out in Minnesota, the Dakotas, Wisconsin and Iowa. Arrows on telephone poles will direct motorists from both cities to the Willys-Overland building in the Midway, and carfare is only 5 cents. Flaming banners will advertise the show on fronts of trolley cars. Admission will be 50 cents. Dealers' tickets will cost them 30 cents flat. Attendance expected is 125,000 as against 50,000 last year.

Already space is sold to 125 car and truck dealers and 75 out of 140 tractor dealers and representatives in the Twin Cities. For the industrial exhibit there are 90 subscriptions, which will include all sorts of goods sold in the Twin Cities and Northwest as well as labor-saving devices. A big feature will be the Government food conservation display, with several speakers from the Food Administration at Washington.

To insure arrivals of exhibits from outside two traffic men are named from the two associations and representatives from the traffic divisions of the Minneapolis Civic and Commerce Association and the St. Paul Association.

Vincennes Goes on Cash Basis

VINCENNES, IND., Jan. 21—All the dealers in this town have gone on a cash basis. In order to make their move known they ran a large display ad in the Vincennes newspapers stating that by paying cash customers can avoid raises in prices and that the elimination of book accounts cuts down the dealer's overhead and thereby makes it possible for the dealer to give better service to the customers. The advertisement is signed by:

D. D. Aldrich, Gibson Overland Co., Vollmer Montgomery Auto Sales Co., Meyer Bros., Vincennes Auto Specialty Co., Whitehouse Garage, Republic Motor Truck Sales Co., Johnson Auto Co., Thos. G. Rankin, Willard Storage Battery Station, Auto Supply Co., The Auto Tire Shop, R. R. Robinson, Brico Auto Co., A. L. Maxwell Co., Finch & East, Broadway Garage, Main Street Garage, M. E. Hunter's Motor Wks., Heitz & Hartzburg, and Vincennes Top and Body Wks.

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Record Sales Reported by Vancouver Dealers

1400 Cars Sold Since June 1—Business Not Diminished in Winter Season

VANCOUVER, B. C., Jan. 21—The last season has been the most successful in the memory of this city's automobile dealers. Since the beginning of June last no less than fourteen hundred cars have been disposed of in the local territory. Reports from the local licensing department show also that the near approach of winter is having little or no detrimental effect on sales.

While medium-priced cars have held the lead in point of sales, many of the higher-priced cars have also been sold by local distributers. That the Province of British Columbia is still virgin soil so far as the automobile industry is concerned is evidenced by the fact that new companies are being formed and branches of established firms from other cities are stretching their tentacles to include the farthest west province of the Dominion.

One matter that is causing no little concern to dealers locally is the question of deliveries. So far Vancouver dealers have been singularly fortunate in keeping pace in large measure with the demands of their patrons, but it is almost too much to expect that this gratifying state of affairs will continue during 1918. But it is hoped that the manufacturers will be able to secure the shipping facilities that will enable distributers out West to keep a flow of cars moving, even if it is not in sufficient volume to meet the heavy requirements that are sure to arise.

Saskatoon Has No Law Governing Gasoline Supply Tanks

SASKATOON, SASK., Jan. 21—The city engineer's report shows that this city has no regulation of any sort covering gasoline supply tanks. The city of Winnipeg, Man., requires the usual building restrictions, but no bond. Vancouver, B. C., does not require a bond, but the owner must sign a release indemnifying the city against all claims for damages, and pumps at curb line are only allowed on wide or lightly traveled streets. London, Ont., has no regulations as to construction or otherwise and no bond is required.

Edmonton, Alta., requires such tanks to be regulated by the building by-law, but requires no bond. In Ottawa, Ont., the building by-law regulates construction, and the permission of the Board of Control is necessary before installation.

194,740 Motor Vehicles Registered in Texas

AUSTIN, TEXAS, Jan. 21—During the first five and one-half months, up to Jan. 1, 1918, that the State Highway Commission was in existence, there were registered a total of 194,740 motor vehicles, including automobiles and motor trucks, and 3579 motorcycles. The number of dealers in the State, according to the Highway Commission's record, is 3094. Licenses were issued to 12,696 chauffeurs, of which about 25 per cent are in San Antonio. In the registration of motor vehicles there is no separation of automobiles and motor trucks. Included in the motor trucks are those owned and operated by the United States Army and other departments of the Federal Government, but no registration fee is charged for these. It is difficult to give anything like a reliable estimate of the total number of motor trucks in the State, but there are probably 10,000 or more in operation. Many automobiles and other motor vehicles have escaped the registration law. It is believed that if all were registered the total number would be close to 225,000. According to unofficial reports made by the county clerks of the different counties several months ago there were at that time more than 225,000 automobiles in Texas.

New 3-Wheel Delivery Car on Market

NEW YORK, Jan. 21—A new small three-wheeled delivery car is being placed on the market by the New York Rotary Motor Co. of which the president is Arthur S. Alexander of the J. Alexander Mfg. Co., an old firm in the trade; Harry S. Houpt, Hudson dealer in New York, is another officer; Colonel Theodore Marceau, a Fifth Avenue photographer, is interested and the fourth member of the company is John L. Miller, Jr.

The company has an office at 1931 Broadway and a factory at 139th Street and Fifth Avenue. Because of the low price, which is $295, its economical operation and its ability to carry a load of 500 lb., its sponsors believe it will have a large sale. It is said one order for about 18,000 is already in hand and that production will be under way by April 1.

The engine is a rotary type with three cylinders enclosed within the spokes of the driving wheel which is placed at the middle and rear of the three-wheeled chassis. The body is mounted forward on the axle and the driver sits above the motor and behind the body, a form of construction that has been seen before in small package delivery cars.

The motor weighs 34 lb. and, it is stated, will develop 10 hp. and make 50 miles to the gallon. A speed of 25 m.p.h. is obtainable and the car is said to run for 1½ cents a mile. Tires, which are pneumatic and 30 x 3, are said to give 7000 miles. The whole vehicle weighs 300 lb. Cylinders are 2⅞ x 2½.

Chevrolet Increases Price of 490

NEW YORK, Jan. 22—The Chevrolet Motor Co. is increasing the price of its 490 model, effective March 1. The old and new prices follow:

	New	Old
Touring	$685	$635
Roadster	660	625
Chassis	625	585

No change in other models is contemplated.

Stewart Motor Corp. Makes 4 Truck Models

Capacities from ¾ to 2 Tons—Three Large Sizes Have Continental Engine

BUFFALO, Jan. 21—The Stewart Motor Corp. is manufacturing four truck models, the model No. 6, ¾-ton capacity; No. 7, 2-ton capacity; No. 8, 1-ton capacity, and No. 9, of 1½-ton capacity.

The No. 6 model, having a capacity of ¾ ton, supplies the demand for a fast light delivery truck. It is driven by a four-cylinder 3⅛ x 4½ in. engine having the cylinders cast in block and the gearbox and multiple disk clutch a unit with the engine. An internal gear rear axle having a total ratio of 6 to 1 and mounted on roller bearings is used. The wheelbase is 110 in., and 32 x 4 in. pneumatic tires are used all around.

This truck is regularly equipped with four types of bodies. The steel-covered panelled body styled the Model A is completely enclosed and provides a loading space 7 ft. long, 45 in. wide and 53 in. high. The chassis and body sell for $875 complete. The Model B body provides the same loading space, but is of the covered express type, having rolled curtain sides. This model complete sells for $840. The Model C body differs from the Model B in that the loading space is not covered and the driver's compartment is provided with a cab. The price is $848. The fourth body style, Model D, is fitted with a stake platform body having a driver's cab and storm curtains. The loading space is 7 ft. long by 56 in. wide, and the price complete is $848. If desired, Motz commercial cushion tires, size 34 x 4½ in., may be fitted to the rear axles at a nominal extra cost, and the chassis alone sells for $750.

Model No. 7 is the largest, being designed for 2 tons and selling for $2,195. It is driven by a Continental four-cylinder engine 4⅛ x 5¼ in., and employs multiple disk dry plate clutch, tubular driveshaft and internal gear, rear axle having a ratio of 8.15 to 1.

A Berling high-tension magneto with a fixed spark, Zenith vertical type carbureter and automatic engine-driven governor are used. Wheels of the artillery type fitted with solid pressed on tires 43 x 4 in., the front single and the rear dual, are used. Standard equipment includes driver's seat, cushion, side and rear oil lamps, bumber, horn, tool kit, tool box and front fenders.

The chassis for the Model 8 1-ton truck sells for $1,295. This truck likewise is driven by a Continental engine having four cylinders 3¼ x 5 in., and the same equipment as that of the Model 7. The final gear ratio, however, is 6 to 1.

The 1½-ton truck styled the Model 9 sells for $1,695, without body. The engine is a Continental four-cylinder 3¾ x 5, and in general construction differs but little from Models 7 and 8.

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Tractor Looms Large To Western Motor Car Dealers

Implement, Vehicle and Hardware Men Plan Big Drive Selling and Repairing Farm Tractors—to Have "Repair Week"

KANSAS CITY, Jan. 21—An exceptionally cheerful view of the motor trade was taken by the representative members of the Western Implement, Vehicle and Hardware Association who attended the annual convention of the association here from Jan. 14 to 19.

Many of the members of the association are automobile dealers and an even greater number handle tractors and another large per cent are going in for motor truck sales. This latter is particularly true of those dealers who are located in the dairy sections represented in Missouri, Kansas, Oklahoma and Texas, and where there is a growing and insistent demand for motor trucks.

It is a notable fact, implement, vehicle and hardware dealers who were interviewed said, that dairying follows the construction of permanent roads. It takes tractors to successfully and efficiently build permanent roads, and to build them at the minimum of cost, so the construction of permanent roads in these states means tractor sales for the dealers and ultimately motor truck sales. It automatically follows that automobile sales are increased with the construction of permanent roads.

Demand for Small Tractors

While only the larger and heavier types of tractors can be utilized in rock and other permanent road construction work, and while business is exceptionally good in this particular line of tractors yet the demand for the smaller or purely agricultural type of tractor is growing.

In the strictly wheat belt of Kansas the demand is still strong for the 30 and 60 hp. tractors, the same type that is being largely utilized in Missouri, Kansas, Oklahoma and Texas in permanent road work. In the corn belt section, or in northeastern Kansas and the north half and the southwestern quarter of Missouri the demand for tractors is confined to the 8-16 and 10-20 types that have so well demonstrated their efficiency on the smaller farms in the past two or three years. The motor cultivator has established itself as an efficient and highly useful farm implement in the cultivating of corn, and trade in this line of tractor activities promises to be good, particularly in view of the shortage of man power on central western farms coupled with an equal shortage of horses to draw farm machinery in the corn and other fields.

More dealers will stock tractors this spring than ever before as they prefer to sell from the demonstration tractor rather than from catalogs. In addition to this phase of sales they prefer to take the discount given for sales to the dealer rather than to take the commission that goes to the dealer where the sale is made through a traveler representing the manufacturer through a branch or distributing house who works the prospect for the dealer. In this way there is a better profit for the dealer.

Will Stock Tractors

The automobile sales plan has encouraged the implement or hardware dealer to stock tractors. He can readily see the commercial aspects of stocking tractors outright and takes advantage of the profit that accrues to him through purchases from the manufacturer.

Those implement and hardware dealers who are now selling automobiles propose to turn the activities now exerted in motor sales to the sales of tractors and motor trucks in the event that passenger cars come under the ban through the exigencies of war.

Many of the implement, vehicle and hardware dealers who attended the Kansas City convention have large automobile repair shops in connection with their implement businesses. George Wayland, an official of the Western Implement, Vehicle and Hardware Dealers' Association, and who has one of the largest businesses in the central west at Booneville, Mo., has a well-equipped automobile repair plant that he operates in connection with his implement and vehicle business and his wagon and carriage manufacturing plant. Wayland has gone in extensively for tractor sales and said that discontinuance of the sales of passenger motor cars would not affect his business in the least as he expects to have as much tractor and truck repair work as he can care for at the rate tractors and motor trucks are being sold and utilized at Booneville and its vicinity.

Big Repair Boom Coming

People will take better care of the passenger cars, he predicts, when they find, if they do, that new cars are not to be had because of war conditions and the diversion of materials to other lines, among which would be tractors and motor trucks. To maintain their cars now owned it will be necessary, he says, to keep them in the best of repair so as to prolong their usefulness to the maximum.

E. A. Murphy of St. Joseph, Mo., who has had a large experience in the handling of automobiles and motor trucks, said that motor car dealers will naturally turn to increased motor truck and tractor sales in the event that passenger automobiles come under the ban because of war conditions. He predicted a largely increased business for repairshops and cited the immense amount of shoe repair work that is being done by every cobbler now that shoes have advanced so much in price as to make their longest possible utilization imperative.

Heavy Repair Work

Dealers everywhere are behind the movement to have all tractor and motor truck as well as farm implement users to take an immediate invoice of their repair needs so as to get these repairs made up and in the hands of those who will require them at the very earliest moment, so that the repair department activities of all the big manufacturing concerns in the motor, and the implement and farm machinery business as well, may be released for war activities. Time for all concerned will be saved and the work of planting and tilling expedited by farmers and truck men having all their farm machinery repaired and ready for work as soon as the farming season opens.

Many counties in the central west are rushing to avail themselves of the federal aid for road work that they must utilize soon if they are to have it at all. This means increased tractor sales for dealers in the communities where these permanent roads are to be constructed with federal aid and as already stated the motor truck and the automobile follow in the wake of permanent road construction.

Farmers Are Prosperous

Unprecedented prosperity in the central west, caused by larger crops, in most instances, and in greatly increased prices for all crops produced in 1917, gives the farmers greater buying power for tractors and motor trucks than ever before.

The demand for tractors is accentuated by the lack of man power and also by the fact that the central west, which is the home of the Percheron horse, a heavy French type, has furnished more artillery and siege gun horses to the Government service than any other section of the Union.

Greatly increased acreages of winter wheat have already been achieved. Corn and oat acreage will be increased over 1917 and this means that more work must be done by fewer men and fewer horses than in 1917, and as horses have been depleted by war demands the farmers are going to turn to tractors to produce the crops that the Government is pleading for.

While many of the larger dealers stated that they preferred to stock tractors and pay for them in the regular commercial way, yet the resolutions adopted by the convention stated that it was the opinion of the convention as a whole that the distribution of tractors would be augmented and furthered if dealers were not required to make a deposit on tractor purchases.

The convention also expressed itself, through the resolutions adopted, as being in favor of "Repair Week" and the

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executive committee was authorized to designate some week in February as "repair week" when every dealer will urge on his customers to invoice his repair needs and have the dealer put in an order for them immediately.

The purpose of this plan is to prevent any transportation delays and to secure maximum car loadings of repairs to branch and distributing points from where the repairs will be sent out to dealers, as well as to give the factories a chance to get these repair parts out of the way and then turn to military activities.

Col. W. E. Lilly of Ochiltree, Tex., who is an extensive ranchman as well as implement, vehicle and hardware dealer, said during the convention that the tractor must precede the motor truck in that country. Livestock is often hauled to market or to shipping points a distance of 20 to 60 miles. This hauling of livestock is done with 6 horses and a huge wagon with a trailer. It would be impossible to change these wagon drivers off directly to truck driving. The tractor is an absolute essential in the voluminous farming in that section where vast areas are plowed and cultivated.

Must Motorize Texas

The motorization of Texas farm activities must come, Col. Lilly said, through tractor driving which has come to be a principal element in farm work and crop production while motor truck driving is an incident attendant on production through motor cultivation, motor trucks being used as a marketing factor after the prime factor of farm work, that of production, has been accomplished.

Hooking Up Tractors and Cars

KANSAS CITY, Jan. 21—How closely should a tractor show be "hooked up" with an automobile show?

Many Kansas City motor car dealers and distributers seriously considered this question in preparing the plans for the motor car show this year. There was a feeling that the automobile dealer will be called upon within a very few years to distribute tractors, and the question became pregnant as to how soon the passenger car, truck and tractor should be closely associated in the minds of the public and from what angle.

"The time is not ripe for a single show of all three," said one man. "For one thing, the motor car dealer is waiting until the tractor gets on the standardized basis of the passenger car and the truck. Then, too, the passenger car dealers are only now getting into the truck business—and they have to have a little time to readjust themselves to the new and different phases of this type of business.

"I am confident that in a very few years—maybe next year—we will see trucks and tractors shown together, perhaps in the same building where the motor cars were shown, and the week following the passenger car exhibition."

The National Tractor Show will be held in Kansas City at the Union Station Plaza the same week as the motor car show.

West Promises Record Season for Truck Men

Dealers See Increasing Need for Inter-City Truck Deliveries—Plan Road Information Service

KANSAS CITY, Jan. 21—Below-zero weather; the heaviest snows for two years; wind drifting it badly—but business men making trips of 200 miles in passenger cars, and truck companies sending out deliveries, in lots of one to 20.

This, during a week when passenger trains are being taken off and are reported a few to many hours late; when the whole district is disturbed over the transportation problem of the coming year——

And when the snow has practically guaranteed the winter wheat crop of the district!

No wonder car dealers, truck dealers, everybody connected with the industry, foresee a vast expansion of the truck business this year.

The week produced this highly contrasting situation: A truck distributer who is right at the top in volume, had, a few days before the storm came, intimated that mid-winter, with storms drifting snow, was a very poor time to get people interested in truck transportation, and that unfortunately nothing much could be done until fairer weather came. Another dealer explained that with proper organization of communities the roads could be kept open even in the worst weather, to guarantee the scheduled freight traffic by trucks. Both dealers happened to be among those whose trucks went out in the worst weather.

"Our truck business has tripled the past year," said one distributer. "We expect it to make great strides this years. There are dozens of localities within a few hundred miles of Kansas City that now actually need truck service between towns; others are going to need it, because of curtailment or suspension of railroad service."

This distributer was confident that in many communities local companies would be formed to establish inter-city truck lines.

Another dealer, whose truck business had doubled last year, was equally confident that individuals would see the commercial possibilities in truck lines and establish them.

The services of the touring bureau of the Kansas City Automobile Club have been in demand for information, by dealers' delivery trucks and persons making business trips, in this weather. The roads—as soon as local traffic has broken the drifts—are in some directions better in extreme cold than after the thaw, and the dealers are advised as to where these routes are, if they are not already acquainted with them.

This bureau of the automobile club is expected to be useful also as spring advances, and the dealers plan their sales campaigns, since the likely prospects for heavier trucks will be along the routes of paved roads, and even the lighter trucks will be more easily sold where roads are kept in fair condition.

Labor Plentiful in Kansas

KANSAS CITY, Jan. 21—There is an adequate supply of labor, a surplus of common labor, and no prospect of a shortage for farm work this spring and summer.

The general labor problem is easy. Careful organization now, and full co-operation through the year, will fill every useful job with a reasonably competent worker, and get the country's work done.

This is the unanimous opinion of a dozen federal and state employment service men, who held their interstate and federal conference in Kansas City recently. The meeting was of the grain states west of the Mississippi, whose labor bureau officials have been co-operating with each other and the Federal Government for several years.

Several of the commissioners saw a new phase of the labor problem developing in the increased number of tractors and trucks on farms, and in the growth of industrial enterprises in their states. In some states a real deficiency in horses is making necessary a great increase in tractors, with the resulting necessity for good local facilities for service thereon, that the tractors may be maintained in active use as consistently as horses with whose care the farmers themselves are familiar.

The commissioners expressed the hope that garagemen would as early as possible this spring get in touch with every farmer in his community, learn his equipment, do his best to get the job of putting it in condition, and arrange so that the most expeditious service in emergencies in working season might be handled by him.

The commissioners hope to get the fullest use of all labor. One made the point that only through the fullest co-operation from garagemen could the labor employed in connection with tractor operation of farms be used to the most economical advantage, since this labor should not be held idle, or employed on non-essential tasks, while undue delay was incurred in tractor adjustments.

The commissioners did not believe it would be necessary this year for any garageman to leave his business to help out a farmer in the field.

Schooler Heads Des Moines Trade

DES MOINES, Jan. 21—The Des Moines Automobile Dealers' Association held its annual meeting last week and elected the following officers: President, Dean Schooler; vice-president, W. W. Sears; secretary, C. G. Van Vliet. To fill vacancies on the board of directors C. W. Payne, C. G. Van Vliet and C. L. Herring were chosen. The motor car men are planning a big co-operative advertising campaign in all parts of Iowa on the Des Moines show, which is to be held late in February.

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Beach Heads Jobber Association

Report Progress in Assisting Organization of Local Associations—Next Meeting at Hot Springs

NEW YORK, Jan. 17—S. F. Beach of the Motor Car Supply Co., Chicago, was to-day elected president of the National Association of Automobile Accessory Jobbers to succeed Charles E. Faeth of Kansas City. Beach is one of the founders of the organization and has been prominent in its activities since it began. The vice-president is P. H. Lyon, Chanselor & Lyon Co., San Francisco. The chairman of the Board of Directors is R. R. Englehart of the Siego Co., Davenport, Iowa. The vice-chairman of the Board is William Sparks, Sparks-Withington Co., Jackson, Mich.

Directors for one year were chosen as follows: W. W. Low, Electric Appliance Co., Chicago; G. N. Schafer, Pruden Hardware Co., New York; F. B. Caswell, Champion Spark Plug Co., Toledo; C. E. Jackson, Jackson Motor Supply Co., Pittsburgh; G. M. McWilliams, Hyslop Bros., Toronto; E. C. Graham, National Electric Supply Co., Washington. Directors for two years: W. D. Alexander, Alexander-Feewaldo Co., Atlanta, Ga.; C. F. Wright, Ballou & Wright, Portland, Ore.; P. H. Lyon, Chanselor & Lyon Co., San Francisco; Wm. K. Norris, McQuay-Norris Mfg. Co., St. Louis; S. F. Beach, R. R. Englehart. New directors: S. F. Proctor, Minneapolis Iron Store Co., Minneapolis; S. T. McCullom, Auto Equipment Co., Denver; Frank T. Chase, Frank Mossberg Co., Attleboro, Mass.; W. T. Walker, Walker Mfg. Co., Racine, Wis.; L. P. Halladay, L. P. Halladay Co., Streator, Ill.; F. A. Ferris, Ferris-Dunlap Auto Supply Co., Dallas.

William Sparks of the Sparks-Withington Co., Jackson; Charles E. Faeth of the Motor & Machinists' Supply Co., Kansas City, and S. F. Beach of the Motor Car Supply Co., Chicago, were appointed a committee on Federal Relations. Practically all of the other general committees stand as before. Some changes are to be made in the state vice-presidents who have charge of organization work, because some of the appointees have not been active, and little in trade organization has been done in their sections. Some of the state vice-presidents turned in gratifying reports.

SAN FRANCISCO HAS TRADE ASSN.

Robert Weinstock, San Francisco, reported that California has the California Automobile Trade Assn. with 2300 members made up of 30 local associations. Each one of these local organizations is divided into what is called crafts. These crafts are dealers, garagemen, painters, body builders, battery men and repairmen, but the collection of crafts in each city is affiliated into a large city association.

In San Francisco it is the San Francisco Automobile Trade Assn., of which Robert W. Martland is secretary, and to him is given a great deal of the credit for having built the organization to its present status. The jobbers have assisted a great deal, however.

PRICE CUTTING ELIMINATED

Price cutting, Mr. Weinstock said, had been largely eliminated through educational methods; shop practices had been standardized; modern accounting methods had been introduced; a credit bureau has been organized and put into operation; dealers have been shown how to stock goods properly and display them, and the result has been a bigger and better business for everyone concerned, with more harmonious relations throughout the trade.

Colorado reported an association formed in October, 1917, which has engaged a salaried secretary and is going forward with considerable prospective success.

Florida is about to organize.

O. R. McDonald of the Gibson Co., reported for Indiana and said that by the time of the next annual convention there will be a report from that state or he would know why. Little has been done in Maryland beyond an organization made up mostly of car dealers. In Michigan what little there was of a state association some time ago has died and about all there is left are locals in Saginaw and Grand Rapids, which, however, are quite strong. Battle Creek also has an association and the jobbers in Michigan are looking to better success in the organization in the immediate future.

In New York state the jobbers have been investigating organization possibilities, the immediate reason being the discussion of the trade acceptance.

In Ohio the jobbers have placed $15,000 and are actively getting behind a state association. A meeting has been called for February 6 in Columbus, at which time it is expected that there will be a large attendance.

Texas has made some progress but it has not a strong state organization.

In St. Louis all trades have combined for a big mass meeting February 19 at noon, during the St. Louis automobile show, at which time special speakers are to be present and the meeting is to be made the beginning of an active propaganda for the big state trade organization. The jobbers in St. Louis are agitating the matter and expect to have the co-operation of the trade in Kansas City at the opposite side of the state.

The next meeting, as told in Motor World last week, will be at Hot Springs, Va., June 5-12.

E. A. Cassidy, New York, moved that the members of the organization cease to say "pleasure car" and refer to vehicles as "commercial" or "passenger" cars. The resolution passed unanimously, with applause.

The association has decided not to continue the distribution of its jobbers' list.

The question of dealer betterments was one of the big subjects throughout the convention and valuable advice to the jobbers was given by George Fritz, field secretary of the association. He advised them to get out into the field and work among dealers. He said:

"When you all go back home do not permit your good intentions to be moss-ridden but strain all efforts to put into effect state dealers' associations and immediately start a personal campaign to educate and keep in line the dealers so that they may be able to do a profitable accessory business.

"For this purpose I would suggest the employment of a practical man who will call upon the dealer periodically and who will demonstrate to the dealers the best way to do efficient work. Being that this man represents the dealers' association, he is neutral and, therefore, the element of selfish motive is eliminated. In that way you will instill into the dealer the initiative, which is sorely lacking with many of them, and you will be able to keep the accessory business where it rightfully belongs.

"Sending of literature and bulletins is mighty helpful but I have my doubts that it would have the effect so necessary. Gentlemen, this is a serious problem; indeed, too serious to be overlooked for a moment. I know, because I have made a close study of this question during the past year in my travels and the time for action is NOW.

Maxwell Drive-Away Carries Parts

DETROIT, Jan. 15—The Maxwell Motor Co. starts 10 trucks overland for a Pittsburgh dealer to-day loaded with the largest supply of parts ever shipped to one dealer. The Maxwell company plans to continue drive-aways at the rate of 100 cars a day from now on.

Oldsmobile Costs $1,550 Without Steel Wheels

NEW YORK, Jan. 19—The price of the special Oldsmobile exhibited at the New York show and finished in azure blue with special disk steel wheels was inadvertently given as $1,550. This is the price without the special wheels, which are extra.

Scrap Metal Prices

NEW YORK, Jan. 18—Following are prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age:*

	Cents Per lb.
Copper, heavy and crucible (nominal)	23.50
Copper, heavy and wire (nominal)	23.50
Copper, light and bottoms	21.00 to 21.50
Brass, heavy	17.00 to 17.25
Brass, light	12.25 to 12.50
Heavy machine composition	24.00 to 24.25
No. 1 yellow rod brass turnings	13.50 to 14.00
No. 1 red brass or composition turnings	19.00 to 20.00
Lead, heavy	6.25
Lead, tea	5.00
Zinc	6.00

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Two Trains Weekly to Carry Cars to Boston

That's What Dealers Propose to Work for—Consider Postponing Show 3 Weeks

BOSTON, Jan. 19—The possibility of putting the Boston motor show back to the last week in March instead of the first, and a plan to have a committee of the Boston Automobile Dealers' Association handle two trains weekly from the motor centers carrying cars and trucks were discussed at a meeting of the board of directors of the organization yesterday.

Under the present Monday holiday ruling this would mean closing the show March 4, and there was a possibility of having to close early in the evening each night, which caused some uneasiness among members.

After a full discussion of the matter it was voted that unless something extraordinary happened the present dates would be adhered to, but provision was made for a change if it seemed advisable. A number of the members would like to see the show go back a few weeks, as it would then be better weather and the business conditions would be easier. However, as all the contracts for space are signed for March 2, it would mean a lot of extra work making plans for a change.

The other matter was outlined by President MacAlman. He stated that he had been informed that there was a possibility of the Government shutting down on all shipments of motor cars and trucks from factories to dealers. In addition to that, there was talk of a transportation chief being placed in the motor centers to see that every motor vehicle leaving a factory carried something along in the way of parts, tires, etc.. In other words, nothing would be allowed to move unloaded. As the Government talked of taking over the express companies, that avenue would be shut off.

Therefore he offered for discussion the suggestion that the organization consider a plan whereby it would appoint a committee to work with the transportation committee of the Boston Chamber of Commerce and try to have two trains weekly brought to Boston carrying motor cars and trucks. The committee would pledge the Government to unload the vehicles on arrival, so the freight cars would be available for return shipment immediately.

It was pointed out that this would be a means of aiding the Government. If the trains could not be brought to Boston the committee would be satisfied to have them stop at Albany, and men would be there to take care of the unloading. Under the plan the dealers wanting cars would have to deposit with the motor committee the money to release the cars on arrival. No attempt would be made to play favorites, and the requests for space in the trains would be granted according to the receipt of an application. The dealers would be given such space as would allow the greatest number to get some cars regularly instead of any one company to get a large number in one shipment.

As Albany is like the neck of the bottle leading to New England, it was felt that perhaps the Government would be willing to go as far as that city with trains. By getting at least two a week through it would be possible to take care of a large number of dealers all through the territory.

This matter was fully discussed and a committee was appointed to give it careful consideration. The committee will confer with dealers and organizations in other parts of the territory regarding the feasibility of entering into some agreement to take space on the trains for regular shipments.

President MacAlman and John H. Johnson will go to Chicago to attend the annual meeting of the National Automobile Dealers' Association Feb. 1 and 2, and while there they will outline the scope of their plan to the members from other sections to see if some general plan can be worked out to cover the entire country and thereby benefit the industry instead of having it in a chaotic condition.

More M. A. M. A. Members Get Chicago Space

NEW YORK, Jan. 19—The Motor and Accessory Manufacturers' Assn. has added the following concerns to the list of exhibitors at the Chicago Automobile Show:

Air Device Co., Chicago.

F. A. Ames Co., Owensboro, Ky.

Anderson Forge & Machine Co., Detroit.

Auto Pedal Pump Sales Corp., 456 Fourth Avenue, New York.

Bay State Pump Co. Boston.

Carburetor Mantle Co., Inc., 1476 Broadway, New York.

Copeman Laboratories, Inc., Flint, Mich.

G. L. W. Spring Oiler Co., San Diego, Cal.

Gibraltar Jack Co., 1902 Broadway, New York

Guarantee Liquid Measure Co., Pittsburgh, Pa.

McCord Mfg. Co., Detroit.

Menominee Electric Products Co., 1756 Broadway, New York.

Miller Transmission Co., 90 West Street, New York.

New Era Spring & Specialty Co., Grand Rapids, Mich.

Wm. E. Pratt Mfg. Co., Chicago.

Rajah Auto Supply Co., Bloomfield, N. J.

Rand Mfg. Co., Haverhill, Mass.

Rex Mfg. Co., Connersville, Ind.

Taft-Pierce Mfg. Co., Wonnsocket, R. I.

C. R. Wilson Body Co., Detroit.

Wire Wheel Corp. of America, Buffalo, N. Y.

Woodworth Mfg. Co., Niagara Falls, N. Y.

Kansas City Show to Mix Cars and Trucks

Exhibits Will Be Utilitarian Rather Than Merely Beautiful—To Show "Transportation"

KANSAS CITY, Jan. 21—"Precedent be hanged—we're winning the war!"

This is the spirit of the motor car dealers of Kansas City territory and of the Kansas City Motor Car Dealers' Association in their plans for the annual show Feb. 11 to 16.

Red tape is being cut; customers are being forgotten; the public good is being considered.

The demise of precedent will be most emphatically demonstrated in the general appearance of the show. Beauty is all right for the parlor—but can be disregarded when the boys in the trenches need food.

So, instead of a handsome and symmetrical display of passenger cars in that department of the show visitors may find a huge truck standing in the space next to a $6,000 limousine—and possibly a small truck in the same space with a touring car, or roadster.

Violates Previous Practice

This practice is a sharp violation of the previous rules of the association, which prohibited a manufacturer who supplied a light delivery car and a passenger car to exhibit them both in the same space—rather, no rule has been violated, but the rule has been changed.

"Everyone is interested in the transportation problem right now," said E. E. Peake, secretary of the association, and manager of the show. "The women who visit the show are deeply interested in trucks, for they are hearing and wondering what their grocers are doing with reference to deliveries—and what they can do."

The juxtaposition of the trucks and the passenger cars will give a stronger tone of practicality to the entire show—and the men visitors can see more clearly the real value of the passenger cars in their business, and gain a more correct notion of the real need of the passenger car in their daily lives.

Aside from the closer harmony with the spirit of the times this admission of trucks is made necessary by the fact that many of the Kansas City dealers and distributers are actually selling far more trucks than ever before, and some who a year ago would not consider trucks for a moment are taking on those lines. The big truck demand seems to be coming from the country; the dealers through the territory are increasing their sales of trucks—and passenger car dealers are more and more seeking to fit their organizations for truck sales. The country wants trucks—and the motor car dealers are evidently going to satisfy them.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Nelson Hall has been appointed production engineer of the Fisher Electrical Works, Detroit, manufacturer of electrical starters for Fords.

Lucius French, advertising manager of the National Motor Car & Vehicle Corp., Indianapolis, has resigned to accept a commission as first lieutenant in the United States ordnance department. He will be attached to the motor equipment department of the ordnance department. **Almas E. Vinton,** assistant sales manager, will succeed Lieut. French as advertising manager.

G. L. Bigsby, engineer for the Anderson Electric Co., has been loaned by his company to the Automobile Industries Committee and will serve on the corps of engineers now employed by that committee for investigation of automobile and parts factories.

H. F. Worley has been appointed manager of the tractor division of the General Motors Truck Co., Kansas City. He was formerly manager of the Kansas City branch of the Nelson Tractor Co.

R. L. Doyle has left the factory of the General Motors Truck Co. to join the Kansas City office of the company.

A. C. Harrington, formerly general carriage sales manager of the Packard Motor Car Co. of New York, has been promoted to the position of supervisor of carriage, truck, used car and used truck sales, and head of the accessories and specifications departments.

Frank J. Foley, formerly manager of the mining department of the Westinghouse & Electric Mfg. Co., has become associated with the Edison Storage Battery Co., Orange, N. J. He will manage the mining and traction department, with headquarters in Orange.

Franklin T. Chapman, formerly body engineer and assistant to the manager of the Olympian Motors Co., has been appointed assistant general sales manager of E. F. Houghton & Co., Pontiac.

D. H. Wetzel, for the last 5 years sales manager of the Mott Wheel Works, Jackson, Mich., has resigned.

Charles A. Swan, formerly superintendent of the Becker Steel Co. of America, has joined the sales organization of the Hess Steel Corp., Baltimore. He will represent the Hess company in Cleveland and Detroit territory.

W. H. Knowles, who was formerly chief engineer of the Saxon Motor Car Co., has been appointed superintendent of Hale & Kilburn Co., Philadelphia.

C. Floyd Greene has been appointed wholesale director of the E. A. Myers Co., Pittsburgh. He was formerly district manager of the Chalmers Motor Co.

W. J. Drumpelman has been appointed assistant sales manager of the Hudson Motor Car Co., Detroit. He was formerly assistant general manager of the Elgin Motor Car Corp., and has been in the sales department of the Lozier, Oldsmobile and Chalmers companies.

C. W. Owston, purchasing agent of the McCord Mfg. Co., Detroit, has resigned and left for Government work in Washington.

Harry Miller, formerly service manager of The Elmer Automobile Co., Hartford, Conn., has joined The Whaley Motor Co., Inc., at No. 449 Wethersfield avenue in a similar capacity.

Robert T. Walsh has been placed in charge of advertising and sales for the Electric Intake Heater Co., Jackson, Mich. He was formerly advertising manager of the Briscoe Motor Co., and prior to that of the Maxwell Motor Co., Inc.

C. S. Thompson, Chicago, has been appointed manager of foreign sales of the Four Wheel Drive Automobile Co., Clintonville, Wis., to fill the vacancy caused by the resignation of J. M. Homs, who has become associated with his brother in the exporting business in New York City.

Y. F. Stewart, Cleveland, has been made Director of Sales of The Economy Motor Co., Tiffin, O.

E. G. Hosier, formerly connected with the Willys-Overland Co., Toledo, as district manager of the midwestern division, has purchased the Overland-Houston Co., Houston, Texas, and on January 1 assumed the duties of president and general manager.

N. F. Sutton, who has been manager of the General Motors Truck Co., St. Louis, for five years, has resigned to enter business for himself at Portland, Ore. Sutton and W. K. Chilcott, former salesmanager for the General Motors Truck Co., Pontiac, have formed a partnership to sell Nash cars and trucks in Oregon, Washington, Idaho, Alaska and part of Montana.

Frank J. Nudelman, St. Louis, has been appointed branch manager for the Maremont Co. in that city.

Waller Edwards, for two years secretary of the Automobile Club of St. Louis, resigned to become war tax collector. Paul J. Fisher, who resigned as secretary of the club two years ago because of his health, is filling the position.

H. S. Gardner, formerly district manager of the Chicago branch of the Willard Storage Battery Co., has resigned to manage the Mid-West Storage Battery Co. at Kansas City, which will operate a Willard service station at that point.

Chas. E. Frizell, formerly district manager of the Willard Storage Battery Co.'s branch at Cleveland, will succeed H. S. Gardner as district manager at Chicago.

L. A. Kuhn, formerly assistant district manager at New York branch of the Willard Storage Battery Co., will succeed Chas. E. Frizell as district manager at Cleveland.

Another Motor World Man in Government Work

NEW YORK, Jan. 21—S. Thornton Williams, who has been associated with the editorial staff of Motor World for nearly 2 years, has resigned to take up government work. He has been appointed Naval Aeronautical Mechanical Engineer and will be stationed at the Navy Yard, Philadelphia.

Toback Made Redden General Manager

NEW YORK, Jan. 21—Samuel S. Toback, formerly one of the largest Hudson distributers in the United States and later distributer of the King and Daniels in New York, has been elected general manager of the Redden Motor Truck Co., Chicago. Toback has also been elected a member of the board of directors. George Hipple, formerly merchandising counsel of the Mitchell Motors Co., Racine, has been elected assistant general manager of the Redden company. A new Redden attachment with a number of improvements is to be brought out.

Several New Dealers Signed at N. Y. Show

Paige and Liberty Both Close Distributors—Live Prospects Prove Numerous

DETROIT, Jan. 21—Manufacturers are slowly filtering back from the New York show, and in practically every instance are filled with optimism for the coming year. It is the consensus of opinion that though the show was not marked by the large crowds heretofore common, those present were there for business reasons, and the total amount of actual business done was greater than in years past.

The statements of the Paige Motor Co. and the Liberty Motor Co. are typical. Paige states that the number of cars sold was much greater than last year, and several good dealers were secured. The Liberty Motor Co. closed with several large distributers, among which are Diuguid Brothers, Brooklyn, and The Georgia Automobile & Supply Co., Savannah, Ga., for the entire state.

It was the experience of these companies that the amount of literature handed out was nearer 100 per cent efficient than ever before, and the number of live prospects—quite different from the amount of business done—was greater than ever before.

Driveaways are being continued, for they offer about the only means whereby cars can be delivered. The Maxwell Motor Co. is to-day sending 10 trucks overland to Pittsburgh, and these trucks are carrying the largest shipment of parts ever sent to one of their agencies at one time. This is in line with their usual practice of making the trucks do useful work in transit, and it is understood that the plans of the company schedule a daily driveaway of 100 cars and trucks from now on. The Liberty Motor Co. likewise sent 5 cars overland to F. E. Stuyvesant, Cleveland, and another alotment recently went to Florida.

Detroit Branch for Fletcher

DETROIT, Jan. 16—The L. V. Fletcher & Co., New York, manufacturers of carbureters, has opened a branch office at 790 Woodward Avenue in charge of George K. Parsons. Frank M. Eldridge, formerly of the Wallace C. Hood Service Bureau, is advertising and publicity manager.

Cooper Union Adds Automobile Engineering Course

NEW YORK, Jan. 2—A motor vehicle engineering course has been added to the other night classes at Cooper Union Institute. It will include class room work, and there will be an extensive laboratory course covering testing materials and engine testing. The course is free and will be conducted by Ethelbert Fafavry.

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More Men You Will Meet at Chicago Show

Accessories

American Bronze Corp.—Sherman—*J. W. Watson, Pres.; *C. C. Clark, *H. E. Smith; Le Salle—*E. G. Anderson, Sales Mgr.; *Garrison Ball.

Au-To Compressor Co.—La Salle—*J. W. Lawhead, Pres.; Sherman—C. L. Hixson, A. S. Clucker, A. J. Ludy; 3215 Potomac Ave., R. G. Stough.

Brewer-Titchener Corp.—La Salle—*M. C. Wood, *L. B. Anger, Otto Heinrichsdorf, L. D. Church.

Buda Co.—Headquarters, Harvey, Ill.—*Lon R. Smith, Sales Mgr.; *William J. Walsh, Asst. Sales Mgr.; *P. J. Dasey, Asst. Sales Engr.; George Koons, Sales and Service Engr.

Continental Motors Corp.—Blackstone—*J. G. Painter, Sales Mgr.; *C. D. McKim, W. E. Fellows, B. F. Tobin, R. W. Judson, G. W. Yeoman.

Coe-Stapley Mfg. Corp.—*A. Peteler.

Cassidy Co., E. A.—Blackstone—*E. A. Cassidy, *Gregory Flynn, *R. G. Ames, C. F. Conn, J. K. Gilchrist, A. L. Martin, H. S. Lyman, M. F. Collins.

Clark Equipment Co.—La Salle—*E. B. Ross, Vice-Pres.; *J. P. Ware.

Curtis Pneumatic Machinery Co.—La Salle—*L. C. Blake, *W. C. Hecker, *J. D. Lodwick.

Dyneto Electric Corp.—La Salle—*C. W. Butterfield, *G. S. Montfort.

Eclipse Machine Co.—Congress—*G. L. Bush, Sales Mgr.; E. J. Dunn, Pres.; J. C. Ferguson, Gen. Mgr.; W. L. McGrath, Chief Engr.; V. Bendix, Sales Engr.

Globe Mfg. Co.—New Southern—*H. M. Dunlap, *J. H. Brandon, T. W. Childs, F. W. Wilbur, Mabel R. Tyrrell.

General Tire & Rubber Co.—Headquarters, 1120 Michigan Ave.—W. O'Neil, J. E. McGinniss, *H. E. Taylor, *D. H. Work, *Theodore Brown, H. G. Ault, Harry Becker.

Grossman Mfg. Corp., Emil—Congress, Room 1136—Emil Grossman, J. M. Lowe, H. G. Wedler, Rudolph Cony.

Halladay Co., L. P.—Illinois Athletic Club—*L. P. Halladay, *W. J. Heineke.

Hartford, Inc., Edward V.—La Salle—*E. R. Waterman, Sales Mgr.; *E. L. Leinbach, *Henry Roemer, J. W. Davis, Adv. Mgr.

Hassler, Inc., Robert H.—La Salle—*E. D. Fouts, Homer A. Woods.

Kent Mfg. Wks, Atwater—Sherman—*H. C Carlisle, H. E. Rice, Sales Mgr.; T. W. Kulicke, M. Freas.

Norma Co. of America—La Salle—Messrs. Nones, Nelson, Bott & Bell.

Oakes Co., The—Congress—*W. H. Oakes, *F. E. Glass, *T. F. Dodd.

Parry Mfg. Co.—Congress Annex—*R. P. Henderson, Sales Mgr.; E. J. Hermann, Asst. Sales Mgr.

Philadelphia Storage Battery Co.—Sherman—*W. S. Cranmer, Edward Davis, Pres.; James M. Skinner, V.-Pres.; R. L. Heberling, L. S. Douglass, H. M. Baumgartner.

Philips-Brinton Co.—Blackstone—*Jesse D. Philips, *C. A. Mattison, Edwin S. Philips, Pres.; William C. Brinton, Jr., V.-Pres.

Prismolite Co.—Lexington—*R. W. Wadsworth, *F. S. Stimson, *C. J. Peterson, *J. G. Earl, R. E. Ackland.

Rex Mfg. Co.—Congress—*E. W. Ryan, *N. A. Crawford, *H. M. Bock; Great Northern—*C. C. Hull, *M. R. Hull.

Remy Electric Co.—Blackstone—*O. F. Conklin, Chief Engr.; *J. B. Replogle, Asst. Chief Engr.; *C. Ringwald, Exp. Engr.; *J. G. Wood, Sales Mgr.; *F. L. Atwood, Fac. Mgr.; G. V. McMahan, H. W. Griffith, George Bell.

Sparks-Withington Co.—Morrison and Annex—*William Sparks, *F. A. Rodgers, *C. L. Falkenberg, Herman Gumper, R. A. O'Reilly.

Standard Parts .Co.—Blackstone—Christian Girl, Pres.; Dan C. Swander, Sales Director; W. E. Perrine, Production Director; W. C. Keys, Engineering Director; Managers of Sales, W. P. Culver, D. K. Moore, B. A. Quayle and B. R. Winborn; James A. Braden, Adv. Mgr.; C. S. Pelton, H. A. Goddard, R. T. Armstrong, H. E. Figgie, R. G. Bradley, C. E. Clemens, Art A. Loeffler, W. Stutson, J. W. Burgess, O. L. Miller, W. Paxton, E. J. Jones, Harry Roettinger, H. E. Jandus, B. H. Blair, H. R. Silver, J. C. Manternach, J. W. Holt, E. Stuck.

Van Sicklen Co.—Congress—*F. B. Wood, *L. O. Anderson, Charles F. Van Sicklen, N. H. Van Sicklen.

Veeder Mfg. Co.—Auditorium—*E. B. Smith, W. C. Waldo.

Waltham Watch Co.—Sherman—*Frank T. Day, Merchandis. Mgr.; *F. E. Dearborn. Service Engr.; E. J. Steele, W. F. McCombs, R. F. Wigmore.

Willard Storage Battery Co.—Blackstone—R. J. Nightingle, Sales Engr.; A. C. Hyser. Gen. Ser. Mgr.; R. C. Norberg, Gen. Sales Mgr.; W. W. Wyneken. Asst. Gen. Sales Mgr.; S. S. Jenkins, Detroit Dist. Mgr.; C. S. Whitney, Sales Engr.

Zenith Carbureter Co.—Headquarters, 1507 Michigan Ave.

Cars

Dorris Motor Car Co.—Sherman—*R. A. Gray, Wholesale Sales Mgr.; G. P. Dorris, J. C. Griffith, M. R. Leathers, J. T. Rumble, George L. Jeck, R. L. Carr, V. C. Kloepper, E. C. Sanner.

Comet Automobile Co.—Morrison—*G. Vernon Beck, V.-Pres.; George W. Jagers, Pres.; F. T. Keisacker, H. H. Borchers, John A. Schroeder.

Dort Motor Car Co.—Congress—J. D. Dort, Pres.; D. M. Averill, V.-Pres. & Gen. Mgr.; J. D. Mansfield. Gen. Sales Mgr.; J. R. Van Cleve, Service Mgr.; H. S. Daniels, Adv. Mgr.; E. Planche, Chief Engr.; F. A. Petrie, L. M. Taylor, C. F. Batchelder, C. F. Applegate, O. F. Gillen, H. S. Dusette.

Lexington Motor Co.—Congress and Annex—*F. B. Ansted, *Emery Huston, *R. J. Irvin, *C. P. Welles, *P. W. Widsom, F. I. Barrows, J. C. Moore, G. C. Patrick, E. B. Brown, L. A. Hanson, W. F. Thoms.

Maibohm Motors Co.—Headquarters, 2637 S. Michigan Ave.—*T. W. Cushing, *Loyd McGinniss, *C. V. L. Marshall, H. C. Maibohm, W. C. Maibohm, John H. Scott.

Moore Motor Vehicle Co.—Morrison—*D. M. Ryan, Gen. Sales Mgr.; *J. B. Long, Pub. Mgr.; Louis Disbrow, Pur. Agt.; George L. Moore, Pres.; A. C. Leonard, V.-Pres.; E. Gallagher, Secy.

Ohio Electric Car Co.—Blacksone—*A. D. Moore, H. H. Brand, G. W. Shaw.

Stephens Motor Branch—Moline Plow Co.—Auditorium—*C. Roy Clough, Sales Mgr.; *W. C. Stewart, *A. J. Pray, *G. Fred Hunter, M. A. Steele, H. J. Leonard, O. C. Williams.

Studebaker Corp.—Blackstone—*R. T. Hodgkins, Genl Sales Mgr.; *Geo. L. Willman, Asst. Genl Sales Mgr.

Velie Motors Corp.—Sherman—*F. E. Bradfield, *Charles R. Gardner, *T. L. Martin, E. R. Gardner, P. D. Crouch, A. E. Humphrey, H. T. Wheelock.

Detroit's 17th Show Surpasses All Others

Opened Jan. 19 in Overland Bldg. 100 Exhibitors Listed— 230 Cars on Floor

DETROIT, Jan. 19—Detroit's seventeenth annual automobile show, and in many respects the best ever held here, opened to-day in the new Overland building. Three floors have been utilized to display a very representative line of automobiles, trucks and accessories. There are 100 exhibitors, fifty of whom are showing passenger cars, twenty are showing trucks, and the remaining thirty accessories. There are 230 cars on the floor. The show is held under the direction of the Detroit Automobile Dealers' Association and the exhibit space totals 75,000 sq. ft.

The building in which the show is being held is new, having been completed during the latter half of 1917. Last year it was necessary to buy Billy Sunday's large wooden tabernacle in order to house the show, with the result that the interior was more like a circus tent than an automobile showroom. Furthermore, it was broken up by posts and was troubled by occasional leaks in the roof, which at times threatened to spoil the oriental decorations. This year, however, by using the big Overland building it has been possible to secure an additional 1000 ft. of floor space in a warm, cold-proof and rain-tight building.

The three floors have been decorated for the occasion with a Roman garden effect, the background of antique walls being surrounded by flowers and flanked by huge vases. Above the walls is a cloud and sky effect giving the impression of a large, outdoor space. The lighting arrangement is indirect by means of clusters of whitened globes. The passenger cars are displayed on the two upper floors, with the accessories and attachments together with the commercial vehicles are on the first floor. It is the plan of the show management to conduct all the visitors to the third floor when they enter the building, so that the exhibits may be seen there first, after which there are broad stairways leading down to the other floors.

Chas. E. Baker, president of the D. A. D. A., looks on the show as a turning point in automobile sales in this territory. Traveling conditions have been bad this winter throughout the middle-west and the cold has been exceptionally severe, with the result that many dealers in this territory have not attended the New York show and probably will not

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go to Chicago. There will, however, be a very full representation of dealers from this territory at the Detroit show. Factory representatives are recognizing this and it is expected that a high water mark in sales transactions will be reached this year. The truck business is expected to show up particularly well and there is a very representative line displayed.

H. H. Shuart, who managed the show last year and who was assistant manager to Walter Wilmot, former manager in years previous, has enlisted the cooperation of the local manufacturers to a larger degree than ever before, and this is one of the vital factors in making this exhibition the most complete ever held in Detroit. The officers of the local organization have also been very energetic along these same lines. Chas. E. Baker, who handles the Jordan, is president.

$4,000,000 Order for Jackson Munitions

JACKSON, MICH., Jan. 17—The Jackson Munitions Corp. received $4,000,000 order from the Government. Another of the same amount or larger is expected upon its completion. The plants of the Jackson Automobile Co. and the Mutual Motors Co. will be utilized. It is expected that production will be started within 30 days, or 60 days at the latest.

Fire Destroys 500 Vehicles

INDIANAPOLIS, Jan. 18—About 500 new passenger cars and motor trucks were destroyed last Sunday night in a fire that burned the Industrial Building in this city, causing a total loss of more than $2,000,000. The loss to Indianapolis automobile manufacturers and sales companies is estimated at $500,000, the loss being well covered by insurance. The Empire Automobile Co. was the heaviest loser, about 400 cars, completed and awaiting shipment in storage, being destroyed. There were five models ready for the spring trade, and the loss to the company will amount to about $350,000, according to C. B. Sommers, secretary. The property was insured heavily. About thirty Chalmers cars, the property of the Conduitt Automobile Co., were burned, causing a loss of about $50,000, which was covered by insurance. Thirty-two Republic trucks also were destroyed in the fire, these being the property of the Republic Truck Sales Co. The loss was $30,000, covered by insurance. J. S. McFarland, secretary of the Cole Sales Co. of Indiana, said that twenty-five Maxwell cars and ten trucks were destroyed that the company had in storage. The loss, which was covered by insurance, amounted to about $25,000.

Receivers for Bijur

NEW YORK, Jan. 19—The Bijur Motor Lighting Co., Hoboken, has been placed in the hands of receivers. It is understood that the action has come as a result of a lack of ready cash with which to carry on certain Government work. Liabilities are placed at $1,250,000 and assets at more than $2,000,000. E. Bright Wilson, Joseph Bijur and Louis V. Hubbard are receivers.

The Week in Washington

WASHINGTON, D. C., Jan. 21—It is reported that all of the factories engaged in the manufacture of Liberty trucks have been granted exemption from the fuel order, but this has not yet been definitely confirmed by the Fuel Administration. The following concerns have been granted exemption by public announcement by Dr. Garfield:

B. F. Goodrich Co. for manufacture of gas masks; Goodyear Tire & Rubber Co., manufacture of gas masks; Packard Motor Co., manufacture aircraft and signal corps products; Ford Motor Co., Lincoln Motor Co., Trego Motors Corporation, Nordyke and Marmon Co., Pittsburgh Engine Co., Wright Martin Aircraft Corp., Willys Overland Co., Aeronautical Engineering Corp., General Motors Corp., Curtiss Aeroplane and Motors Corp., Thos. Morse Aircraft Corp., Fisher Body Corp., Dayton Wright Airplane Co., Standard Aeroplane Corp., Engel Aircraft Co., West Woodworking Co., American Propeller Co., Hartzell Walnut Propeller Co., and the Astoria Veneer Mill & Dock Co., and others for the manufacture of aircraft and aircraft products.

7000 Mechanics for France

WASHINGTON, D. C., Jan. 21—Seven thousand mechanics are required for early service in France by the Aviation Section of the Signal Corps, the urgency being such that these should leave for France about Feb. 1. Previous to leaving for France they will undergo a short preliminary training at Fort Hancock. The men are required for various mechanical lines and will be organized into four regiments. Those eligible for enlistment must be outside of draft ages, and the ages desired by the Signal Corps are 18 to 20, inclusive, and 31 to 40, inclusive.

Of the total 7000, approximately 3500 mechanics familiar with gas engine repair, etc., are needed. In addition, the classification of men follows:

Automotive mechanics	3500
Ignition men	300
Truck drivers	194
Blacksmiths and forgemen	220
Canvas workers	100
Cabinet workmen	500
Cooks	200
Harness makers	20
General mechanics	400
Lathe men	160
Machinists (planers and millers)	116
Tool makers	640
Sheet metal workers	460
Wheelwrights	220
Welders	80
House painters	40
Sign painters	40

In the organization of these men into regiments the classification is as follows:

Master signal electricians	82
Sergeants, first class	522
Sergeants	1806
Corporals	2064
Privates, first class	2024
Privates	504

The pay for these different classifications covers a wide range. The master signal electricians receive $87 per month, and with allowances for dependents, reaches $129.70. The pay for sergeants, first class, is $53, which, with allowances, reaches $96. For sergeants the pay is $44, which may reach $85 with allowances; for corporals, $36, and to $75 with allowances, and for privates $30 to $68.50 with allowances.

All men enlisting will have to do so through local recruiting offices, which are scattered over the country.

This call for skilled workmen offers a very useful field for those desiring to get into this work in France. Undoubtedly these workers will all be located in the great repair and maintenance depots to be established back of the lines in France.

Double Aviation Appropriation

WASHINGTON, D. C., Jan. 21—Major-General George O. Squier of the Signal Corps and member of the Aircraft Production Board is asking Congress today for $1,032,294,260. This amount almost doubles the $640,000,000 already allotted for the Aviation program, and does not include $105,000,000 additional which is estimated for the needs of the Signal Corps.

General Squier explained behind closed doors the progress already accomplished and gave the figures and technical details showing what it is expected this billion dollars asked for will accomplish. The Aircraft Board operating on a very efficient basis eliminates all red tape in its methods. It is spending an average of $2,000,000 a day and no contractor has ever to wait more than twenty-four hours for payment. Plans conceived in the morning are voted on at noon and put into operation before night. The need for the billion dollars is created by the fact that the money already allotted has for the most part already been converted into fighting material and into the accessories needed for the conquest of the air.

Washington Dealers Close

WASHINGTON, D. C., Jan. 21—The automobile dealers of this city have all closed in compliance with ruling of the Fuel Administration. A few service stations are staying open but only with sufficient fire to keep the cars in the shops from freezing and only such work is being done as is necessary to keep customers' cars in operation. Those places where shops are on the upper floors have arranged to do the shop work on the ground floor during the emergency period. A meeting of the Automobile Trade Association will be held some time this week to decide on service plans for the coming nine Mondays.

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Car and Truck Maker Advance Their Prices

Haynes Puts Up Prices and Schedules Further Increase—Republic Trucks Advance

KOKOMO, IND., Jan. 19—Factory prices of all Haynes models have been increased as follows:

Model	New Price	Old Price
39—4-pass. roadster (formerly Model 37)	$1825	$1725
38—5-pass. touring (formerly Model 36)	1725	1595
39—7-pass. touring (formerly Model 36)	1825	1725
39—Sedan (formerly Model 37)	2585	2390
44—7-pass. touring (formerly Model 41)	2785	2295

In addition, the following new models are being built:

Model	Price
44—Sedan (12 cyl.)	$3385
44—Coupe (12 cyl.)	3335
44—Town car (12 cyl.)	3985
39—Coupe (6 cyl.)	2535
39—Town car (6 cyl.)	3250

The prices of all touring models will be increased an additional $125 on March 1. Cars leaving the factory up to that date will be charged for at the present rate, but after March 1, even if ordered in advance, the new price will hold.

Republic Truck Raises Prices

ALMA, MICH., Jan. 17—The Republic Motor Truck Co. has increased the price of its models according to the following schedule, all prices being quoted in single units or in fleets, f.o.b. Alma, Mich.:

	Old Price	New Price
¾-ton	$ 895	$ 995
1-ton	1195	1295
1½-ton	1550	1650
2-ton	1885	1975
3½-ton	2750	2950
5-ton	4250	4500

New United Trucks to Be Seen at Chicago

GRAND RAPIDS, Jan. 21—The new United worm-drive motor truck models, manufactured by the United Motors Co., will be on exhibition at 1231 Wabash Avenue, Chicago, during the time of the Automobile Show. The new series includes models of 1-, 2-, 3½- and 5-ton capacities. Prompt deliveries, due to the doubling of the factory capacity, are assured for the coming season, and will start about the beginning of February. Prices, including bumper, radiator guard, hubodometer and painting, follow:

1-ton	$1850
2-ton	2550
3½-ton	3450
5-ton	4500

$.75 on $1 for Springfield Creditors

DETROIT, Jan. 17—Barney F. Everitt, acting as trustee for the bankrupt Springfield Body Co., states that general creditors will doubtless receive $.75 on the $1. The Detroit Shell Co. has purchased all the assets except the wood working machinery, stock on hand, accounts receivable and patents. Sale of the patents on the Springfield body to a large body maker is pending and patent litigation with the Fisher Body Corp. has been satisfactorily settled.

HERE'S A GOOD IDEA

DULUTH, Jan. 19—The Duluth Automobile Dealers' Association has unanimously voted to donate the entire proceeds of its fourth annual Automobile Show to be held the week of Feb. 23, which will represent several thousand dollars, to the American Red Cross Association, thereby doing their bit as an association.

Triple Gasoline Yield

NEW YORK, Jan. 21—A new process, which, it is stated, will triple the quantity of gasoline obtainable from crude oil, is said to have been perfected by Dr. A. H. Ramage, who is a member of the American Electro-Chemical Society. It is stated that a company has been formed in Detroit to manufacture and market gasoline produced under this new process, and that Christian Girl, head of the Standard Parts Co., Cleveland, is interested in the company, which also includes A. H. Goss, a Detroit capitalist; E. W. Farr, a Cleveland capitalist; S. A. Fletcher, an Indianapolis banker; H. B. Smith, a Bay City, Mich., banker; F. C. Finkenstaedt, Bay City, formerly head of the National Cycle Co.; H. B. Earhart, head of the White Star Oil Co., Detroit, and A. E. Leopold, a Chicago capitalist. It is stated that the process differs from the Burton process and does not employ the cracking principle. Instead the oil is claimed to be chemically charged as it passes through the stills with the result that the yield of gasoline is tripled. It is said that the owners of the process have offered it to the Government for the duration of the war without cost.

Look for Tire Increase

NEW YORK, Jan. 21—Rumors of a general increase in tire prices cannot be confirmed. It is generally admitted that there undoubtedly will be an increase in the not far distant future though none of the companies will set a date. Within the week there has been a slight rearrangement of discounts on tubes by a number of the larger companies. Lists remain unchanged but dealers are being offered as much as 10 per cent additional discount in some cases.

Packard Truck Train Leaves This Week

DETROIT, Jan. 17—The next army truck train of thirty Packard trucks starts overland Friday morning. It will be followed by several Packard trucks and passenger cars being sent to Baltimore and Washington dealers. Each truck will carry another truck.

Insurance Theft Rate Not To Be Increased

New Rate Would Have Been 12% Higher and Owner Would Have to Stand Half the Loss

DETROIT, Jan. 19—Proposals for increased rates for automobile theft insurance have been withdrawn for the present. The contemplated changes which were to have become operative on March 1 had so many obnoxious features that it has been decided to postpone action temporarily. The cause of the question of increase is due to the alleged existence of an organized ring in Detroit for the purpose of stealing automobiles. A large number of arrests have been made, but the proportion of cars stolen in and around Detroit is still staggering. It was to combat such conditions that the rates for indemnity for automobile theft were advanced partially in Detroit and Wayne County on Nov. 1. The proposed new rates would increase the insurance on low priced cars 12 per cent, and also carries a 50 per cent coinsurance clause under which the owner would be forced to stand half of any loss. Some companies also favor the issuance of a policy excluding extra tires and appliances not furnished with original car. The accompanying tabulation gives the old and new rates:

	Old	New
Cars $790 and under	$3.75	$5.35
Cars $800 to $1,399	3.00	3.85
Cars $1,400 to $2,499	2.00	3.85
Cars $2,500 to $3,499	1.75	2.10
Cars $3,500 and over	1.50	1.85

Denver Secretary Resigns

DENVER, Jan. 21—Edgar W. Johnson, secretary of the Denver Automobile Trades Association for the last 2 years, gave notice to the board of directors tonight of his resignation to accept a position as assistant secretary of the Norton-Buick Auto Co., Buick agent for Denver and vicinity and General Motors Co. truck distributer for Colorado and adjacent territory. The change is to take place Feb. 1, and Secretary Johnson's successor has not yet been chosen. The membership has practically doubled during his term of office and has now reached the 150 mark.

Government Work for Haynes

INDIANAPOLIS, Jan. 18—The Haynes Automobile Co., Kokomo, was assured by Government officials in Washington last week that the company soon would be given a contract for the manufacture of 4000 motors and 4000 transmissions, entailing a cost of about $3,000,000. These orders would keep the company's plant in capacity operation for six months, and the production of pleasure cars probably would be curtailed temporarily, according to representatives of the company.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1095	1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	29.4	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1375	....	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	33x4	SS	**1465	....	....	....	2165	....	....
DeLuxe	6-3½x5½	29.4	.....	.....	.....	D	3	....	....	....	**1925	....	....	....	....	....	....
APPERSON																	
6-18	6-3½x5	29.4	Remy	Rafld	Bijur	DP	3	130	35x4½	SS	†2200	....	2200	....	....	....	....
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	35x4½	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafld	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1595
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	4950	5250	....
BIDDLE																	
H	4-3½x5½	22.5	E'mann	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West	Stmbg	West	DP	3	118	33x4½	QD	....	1385	....	....	....	....	....
	4-3½x5	22.5	West	Miller	West	DP	3	118	32x4	....	....	....	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	7200	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3⅛x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	725	725	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 {125	35x5 34x4½	SS	2805	....	2805	....	3650	4145	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafld	Wsths	D	3	125	35x4½	SS	†1875	....	1875	....	**2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	{117 {122	32x4 34x4	SS	1365	1365	1450	....	1850	2925	....
CHANDLER																	
25	6-3½x5	29.4	Bosch	Rafld	Wsths	DP	3	123	34x4	SS	†1595	....	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA-2	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	106	32x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	2395	1995	2195	2495	{2595 {2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lard	DP	3	115	32x4	....	†1495	1350	....	....	1995	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	....	{935 {995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	{132 {142	35x5 37x5	....	....	....	....	....	....	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	....	....	....	....	....	....	....
DAVIS																	
H, I, K	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1485	1485	....	1850	....	....
J, l	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1785	1785	....	....	....	....
DISPATCH	4-3½x5	22.5	Bosch	Rafld	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....
DIXIE FLYER																	
LS35	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†995	995	....	....	1375	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	795	....	....	1095	....	....	865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	975	975	975*	1375	1375	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3550	3500	3550	....	5150	5250	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K D	Simms	C	3	109	30x3½	C	‡745	745	....	1095	1095	1095	855
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3500	3500	3500	....	4600	4650	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QD	3400	Racea bout	3250	..	....	....	....
METZ																	
25	4-3½x4	24	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Conn	Rafld	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	‡1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	....	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
	6-3½x4½	25.3	Heinse	Stmbg	Dyneto	D	3	117	33x4	SS	1195	1195	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	QD	565	‡635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Tltzn	Wagner	DP	3	114	32x3½	SS	....	1195	....	....	....	....	....
6-45	6-3½x4½	25.3	Delco	Rafld	Delco	DD	3	125	34x4	SS	‡1685	....	1685	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†1850	....	1850	2650	2650	....	....
MOORE																	
30-E	4-3½x4½	22.5	Spldf	Schebler	Dyneto	D	3	{106 {106	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafld	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-683	6-3½x5	25.3	Delco	Marvel	Delco	P	3	121	34x4	SS	†1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	†1995	†1995	1995	2645	2820	....	....
Twelve	12-2½x4½	39.6	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	†2595	†2595	2595	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	1800	....	.. .
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	†990	990	...	{1150 {1490	1190	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1467	....	....	....	.. .
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1185	1185	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	Remy	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Tltzn	A-Lite	C	3	112	32x4	SS	‡915	930	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Tltzn	A-Lite	C	3	{104 {106	31x4	C	780	795	†840	....	1240	....	....
85	6-3½x4½	25.3	.....	Tltzn	A-Lite	C	3	116	32x4	....	820	970	....	....	....	....	....
	4-3½x4	16.9	Conn.	.....	A-Lite	D	3	100	30x3½	....	....	....	....	....	....	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7	Bosch	Zenith	O-M	OM	6	{136	{35x5	SS	‡3950	‡3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4						{142			....	....	5300	....	6300	6300	....
PACKARD																	
3-35								{136				....	4100	....	....	5650	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	{128	35x5	QD	....	3700	3700	5050	....	5350	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1330	1330	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafld	Remy	D	3	127	35x4½	SS	....	....	1775	2850	....	3350	....

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DOBLE	2-5 x4	....	Own	Doble	Stmbg	Wagner		135	35x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24	Delco	Stewart	N.E.	D	3	114	32x3½	SS	885	885	....	1350	1350	....	....
DORRIS																			
I-C-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	130	36x4½	SS	....	....	....	....	....	....	....
DORT																			
11	4-3½x5	19.6	Conn.	Carter	Wsths	C	3	105	30x3½	QD	885	865	....	1265	1265	....	....
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	116	32x3½	SS	....	....	....	....	....	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	....	....	....	....	....	....
ELGIN																			
A	6-3½x4½	23.4	Remy	Stmbg	Wagner	DP	3	117	32x4	....	†1095	1095	....	1045**	1645	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	†1345	1345	1345	....	1685	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly {Kngstn	....	D	2	100	30x3½	rC	345	360	....	560	695	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	{32x4SS {33x4}		2050	2050	....	2850	2950	3200	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Radfid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1055	1055	....	....	....	....	1350
HAL TWELVE																			
21-A	12-2½x5	39.6	....	Stmbg	Wsths	DP	3	135	34x4½	SS	3600	3750	3600	....	4500	5000	....
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	†1185	1150	....	....	....	....	....
R	6-3½x5	29.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	785	....	....	....	....	....
HARVARD																			
4-30	4-3x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	750	†985	....	....	....	....	....
HAYNES																			
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1725	....	....	....	....	....
39	6-3½x6	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1825	....	1825	....	2585	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2785	....	2785	....	3385	....	....
HOLLIER																			
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1285	....	....	....	....	....
188	8-3x4½	28.8	A.Kent	Stewart	Splitdf	C	2	116	34x4	SS	†1285	1285	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125	34x4	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1250	1250	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	37x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
26-AB	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	3	125	34x4	SS	....	1675	1675	....	2550	....	....
JORDAN																			
J 60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2750	2500	....
KING																			
EE	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	‡2150	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1496	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585		2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	1495	....	2300	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1350	1350	....	....	1925	....	....
LOCOMOBILE																			
38Series II	6-4½x5	43.3	Berling	Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
48 Series II	6-4½x5½	48.6	Berling	Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON																			
	.....	....	.....	.....	.....	..	.	{124	....	....	....	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	{120	34x4	SS	†1485	1485	1485	....	....	....	....
PAN-AMERICAN																			
G-5	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	32x4½	SS	....	1500	....	1650	....	1950	....
J-7	6-3½x5½	29.4	Bosch	Rafid	G & D	P	3	128	34x5	....	....	....	....	....	....	....	....
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	**1795	....	.. .
PEERLESS																			
56	8-3½x5	33.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS	†2340	....	2340	2850	2990	3890	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Titsn	Delco	DP	3	119	32x4	SS	†1295	1295	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	32x4½	SS	2285	....	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	..	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	115	34x4	SS	1225	1225	....	....	....	....	....
ROAMER																			
C6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2350	....	2475	....	3350	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	2950	....	3250	....	3950	....	....
ROSS																			
	8-3½x5	33.8	....	....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
B-5-R	4-2½x4	12.1	A.Kent	Schebler	Wagner	DD	3	96	30x3	DC	445	....	....	....	....	....	....
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	935	....	1395	....	....	....
SAYERS																			
	6-3½x4½	25.3	Delco	....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1425	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	1250	....	....	....	....	....	....
	6-2½x4½	....	Remy	Marvel	Remy	C	3	112	....	....	1195	....	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwomb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	3800	†3800	3800	....	....	4750	....
STANDARD																			
G	8-3½x5	33.8	Splitdf	Zenith	Splitdf	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4x5	....	....	....	....	..	.	130	35x4½	SS	‡2550	2600	2225	....	....	....	....
STEARNS																			
SK14	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1785	1785	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2575	....	2575	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	....	‡1485	†1485	....	1660**	1985	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19.6	Remy	Schebler	Wagner	C	3	112	32x3½	SS	....	895	....	....	....	....	1250
EH-6-50	6-3½x5	29.4	Remy	Schebler	Wagner	C	3	119	32x4	SS	....	1295	....	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1695	....	....	....	....	....
STUTZ																			
S	4-4½x5	30.6	Bosch	Stmbg	Remy	C	3	120	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	....	1985	....	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1340	1340	†1340	....	1885	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1890	1940	1940**	2790**	2790	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	....	Own	L-N	P	4	{124½ {137½	35x5 35x5	U	†5000	....	†5000	6050	6050	6200	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titsn	A-Lite	C	3	121	34x4½	SS	....	....	1535	2175	2325	2325	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2000	....	2700	2800	....
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Titsn	A-Lite	C	3	120	33x4½	SS	†1365	....	1365	....	2045	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2950	2950	3000	3865	4165	4165	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....
WOOD'S																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag		124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Titsn" Tillottson, "B & Ball" Ball & Ball, "Atzr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "Spldf" Splitdorf, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37½x5½r means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Coming—THE SHOW CALENDAR—*Events*

Is YOUR Show Listed? Send Us the Dates

Milwaukee, Wis.	Milwaukee Automobile Dealers Inc., Auditorium. First 7 days, passenger cars; last 3 days, commercial cars. Bart J. Ruddle, Mgr.	Jan. 16-25
New York, N. Y.	Motor Boat Show, Grand Central Palace, National Assn. of Engine & Boat Manufacturers.	Jan. 19-26
Montreal, Can.	National Motor Show of Eastern Canada. Montreal Automobile Trade Assn.	Jan. 19-26
Cleveland, O.	Seventeenth Annual, Cleveland Automobile Show Co., Wigmore Coliseum. Fred H. Caley, Mgr.	Jan. 19-27
Detroit, Mich.	Detroit Automobile Dealers' Assn., Overland Bldg. H. H. Shuart, Mgr.	Jan. 19-26
Buffalo, N. Y.	Buffalo Automobile Dealers' Assn., Broadway Auditorium.	Jan. 21-26
Wilmington, Del.	Wilmington Automobile Show Assn., Hotel Du Pont. H. N. Partington, Mgr.	Jan. 21-26
Scranton, Pa.	Scranton Motor Trades Assn., Armory, Hugh B. Andrews, Mgr.	Jan. 21-26
Portland, Ore.	Motor Car Dealers' Assn., Armory. Jos. M. Rieg, Mgr.	Jan. 21-26
Oklahoma City, Ok.	Oklahoma City Automobile Dealers' Assn., 701 No. Broadway. Roy H. Haun, Mgr.	Jan. 22-26
Mifflintown, Pa.	Automobile Trade Assn., Valley Stream Auditorium.	Jan. 22-26
Baltimore, Md.	Baltimore Automobile Dealers' Assn. and Automobile Club of Maryland, Fifth Regiment Armory.	Jan. 22-26
Allentown, Pa.	Lehigh Auto. Trade Assn., Traylor Motor Co.'s Garage. P. W. Leisering, Publicity Mgr.	Jan. 23-28
York, Pa.	York County Auto. Dealers' Assn., Tabernacle. T. F. Pfeiffer, Sec.	Jan 26-Feb. 3
Bridgeton, N. J.	Bridgeton Automobile Dealers' Assn.	Jan. 26-Feb. 2
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Jan. 26-Feb. 2
Chicago	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland, Mgr.	February
Indianapolis, Ind.	Indianapolis Automobile Trade Assn., Diamond Chain Works Bldg. John B. Orman, Mgr.	Feb. 25-Mar. 2
Minneapolis, Minn.	Twin Cities Automobile, Truck, Tractor and Industrial Exposition, Minneapolis Auto. Trade Assn. Walter B. Wilmot, Mgr.	Feb. 2-9
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars..	Feb.23-Mar.2
	Trucks	Mar. 5-9
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	Feb. 5-9
Bronx, N. Y.	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16
Binghamton, N. Y.	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9
Lancaster, Pa.	Automobile Trade Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	Feb. 6-9
Portland, Ore.	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	Feb. 6-13
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16
Kansas City, Mo.	Third Annual Tractor, Kansas City Tractor Club.	Feb.11-16
St. Louis, Mo.	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 11-16
Toledo, O.	Toledo Auto Shows Co., Terminal Bldg. H. V. Buelow, Mgr.	Feb. 11-17
Ft. Wayne, Ind.	Automobile Trade Assn., Concordia Gymnasium.	Feb. 13-16
Hartford, Conn.	Hartford Auto Dealers' Assn. State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
Albany, N. Y.	Albany Auto Dealers' Assn., State Armory.	Feb. 16-23
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Duluth, Minn.	Duluth Auto. Trade Assn., Armory. John J. Lane, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Nashville, Tenn.	Nashville Auto Trade Assn., Hippodrome. Henry B. Marks, Mgr.	Feb. 18-23
Des Moines, Ia.	Ninth Annual Pessenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet and Dean Schooler, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Quincy, Ill.	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-23
Muskegon, Mich.	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino B. B. Steiber, Mgr.	Feb. 25-Mar. 2
Columbus, O.	Columbus Auto Show Co., W. W. Freeman, Mgr.	Feb. 27-Mar. 2
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 23-Mar. 2
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
Clinton, Ia.	Clinton Automobile Dealers' Ass'n, Coliseum.	Mar. 6-9
St. Joseph	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	Mar. 6-9
Watertown, N. Y.	Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.	Mar. 6-9
Green Bay, Wis.	Brown County Automobile Trade Assn.	Mar. 8-11
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn. Auditorium.	Mar. 11-16
Fargo, N. D.	Gate City Auto. Show Co., Auditorium. J. W. Murphy, Mgr.	Mar. 12-15
Great Falls, Mont.	Montana Automobile Distributers Assn., Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	Mar. 19-24
Houlton, Me.	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-22
Holdredge, Neb.	Second Annual of Southwest Nebraska.	Mar. 20-23
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Red Bank, N. J.	Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr.	Apr. 6-13
Stockton, Cal.	Third Annual San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13
Calumet, Mich.	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-20

Conventions

Montreal, Can.	Convention of all men Interested in the Automobile Industry in Eastern Canada.	Jan. 22-24
Chicago, Ill.	Annual Convention, Garage Owners' Assn. of Ill., Green Room, Congress Hotel.	Jan. 29-31
Richmond, Va.	Richmond Automobile Dealers' Association, First Regimental Armory. Henry B. Marks, Mgr.	Jan. 21-26
Hot Springs, Va.	Third Annual World's Salesmanship Congress.	June 16-20

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At the Chicago Show

You can see the various models of Waltham Clocks that have become standard equipment for the following makes of cars:

Anderson 6-40	Detroit-Electric	Kissel	Rauch & Lang
Apperson	Doble	Locomobile	Rolls-Royce
Brewster	Fergus	Marmon	Simplex
Cadillac	Franklin	Mercer	Stearns
Chalmers	Haynes	Murray	Studebaker
Cole	Hal	Owen-Magnetic	Willys-Overland
Crane	Hudson Super-Six	Packard	Winton
Cunningham	Jordan	Pierce-Arrow	

Over 250,000 Now in Use as Standard Equipment



The Waltham Automobile Clock

has two mainsprings and is stoutly and scientifically built to resist the shocks of road travel and the extremes of temperature. It is the **only** clock so built and so adjusted. It tells the right time. It is splendidly durable. In appearance it conforms with the luxurious cars that use it. A red signal on the dial shows when the clock needs winding. The presence of a Waltham in a car has become an index that points to the car's class.

WALTHAM WATCH COMPANY, WALTHAM, MASS.

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NOW COMES RED TRUCK

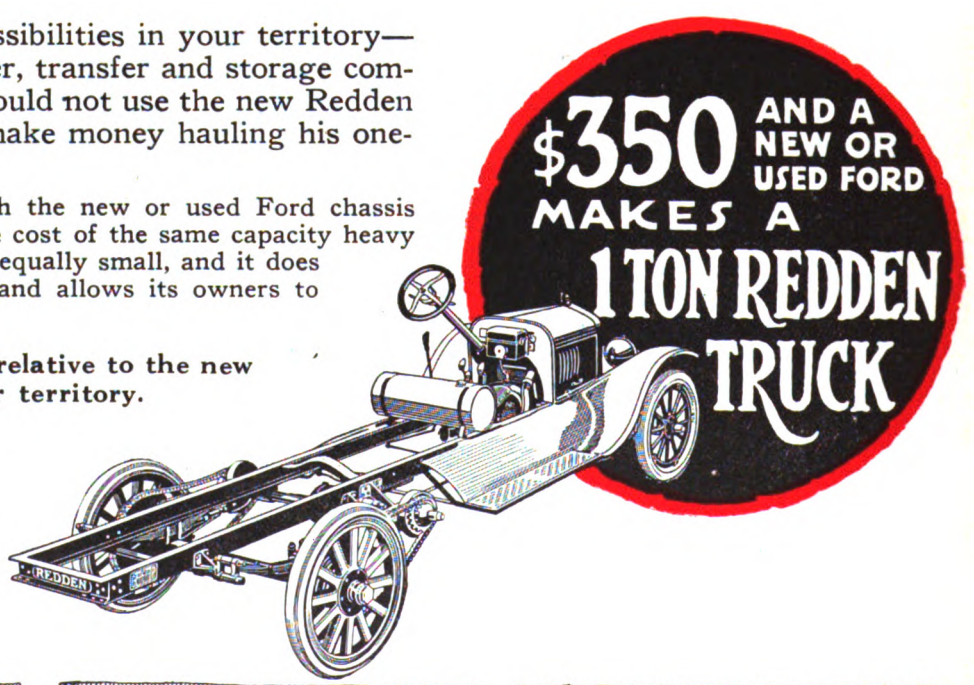
YOU never made so much money in any line of motor cars as you can make this Spring, if you secure the valuable franchise offered on Redden Truck-Makers. The new Redden has a number of important engineering improvements that quicken its salability in your territory. Also, there are new distributor and dealer policies that in themselves will augment your profits.

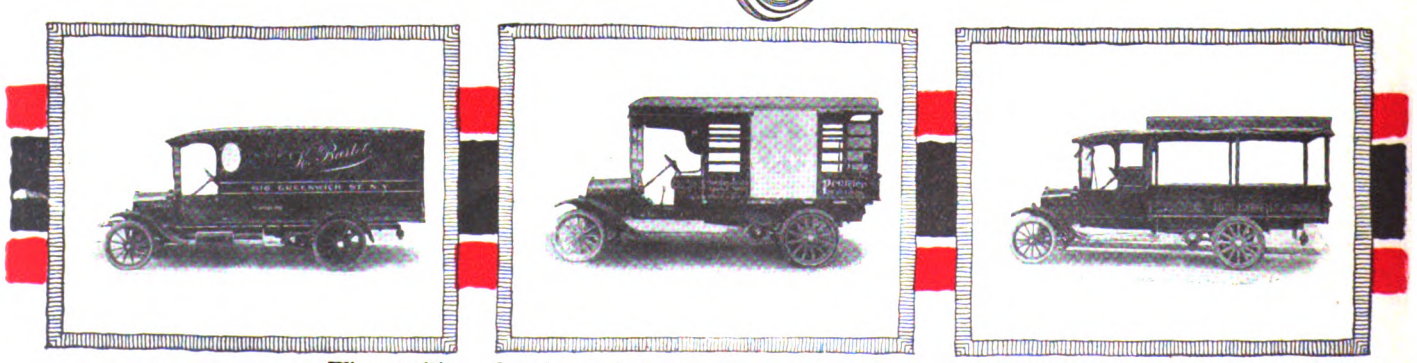
Look over the Redden possibilities in your territory—what merchant, manufacturer, transfer and storage company, or firm, is there who could not use the new Redden Truck-Maker at $350, and make money hauling his one-ton loads with it?

The Redden Truck-Maker with the new or used Ford chassis costs but 25 to 40 per cent of the cost of the same capacity heavy duty truck. Its operating cost is equally small, and it does the same work at equal speeds and allows its owners to haul for half.

Get in touch with us today relative to the new Redden Dealer Policy for your territory.

Redden Motor Truck Co., Inc.
2337 So. Michigan Ave.
Chicago, Ill.





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THE NEW REDDEN TRUCK-MAKER

WIRE YOUR TERRITORY RESERVATION

Your territory will buy thousands of dollars' worth of the new Reddens this year. To clinch that franchise and hold for yourself the profits that these sales will make someone, we advise you to wire your territory reservation today.

The Redden Truck-Maker has made good in a big way. The new Redden has truck wheels, a solid bar truck axle of high-carbon heated steel with heavy-duty roller bearings, steel truck springs 40 inches long, 8 leaves and 2½ inches wide. Hardened steel bushings are used at the ends and the shackles are very heavy with large bearing surfaces. The truck frame is heavy 4-inch pressed steel channel. This slides over and bolts through the Ford frame, reinforcing and holding it securely in place—prevents "weaving" and eliminates the possibility of breakage in the frame. There are two extra service brakes on the jackshaft.

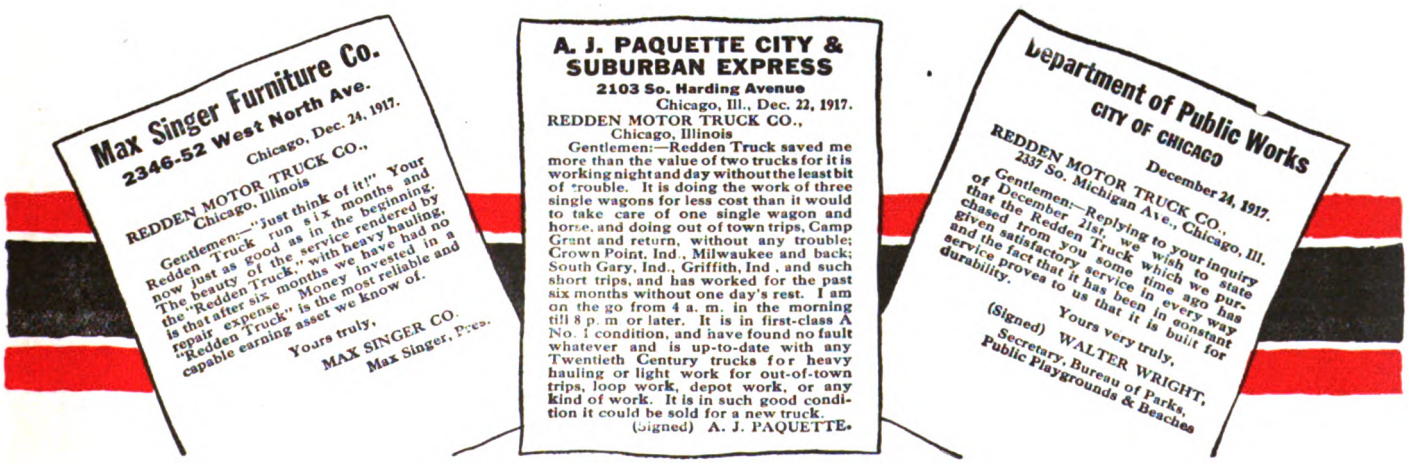
Please know in consulting us about your territory that behind the Redden Truck-Maker stand men whose success in passenger car manufacturing, tire manufacturing, the metal industries and food stuffs is known the country over. They have never had anything but a success in any line of endeavor. They are directors of banks, presidents of great companies, and the Redden proposition from your standpoint is solid to the core.

And the letters below prove the worth of the product in actual hard everyday service.

Someone is going to secure your territory and make this money. Do not let someone else secure the franchise by quicker action. You can get it by wiring now to

REDDEN MOTOR TRUCK COMPANY, INC.

2337 SO. MICHIGAN AVENUE DEPT. 101 CHICAGO, ILLINOIS



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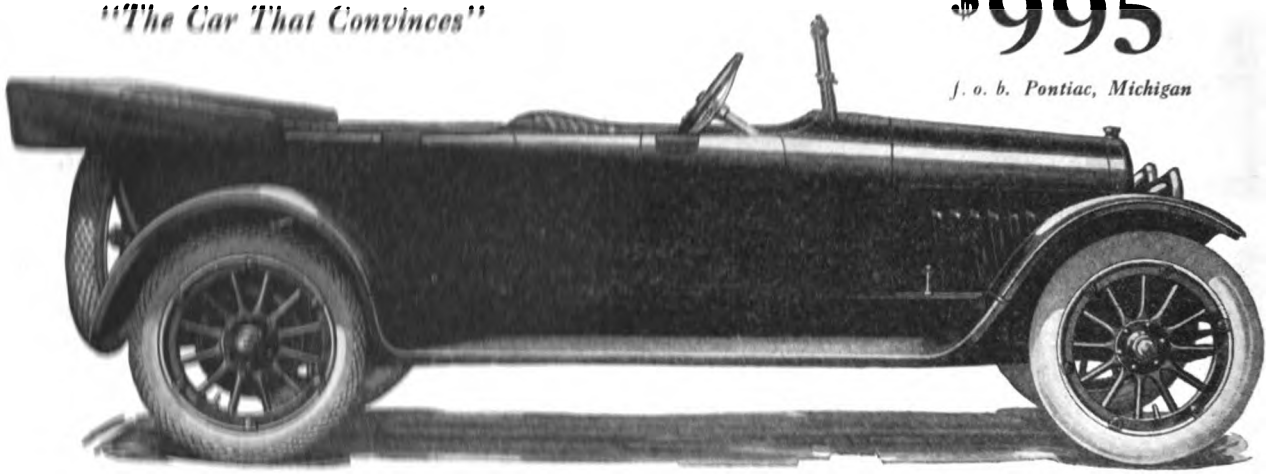
MONROE

The William Small Company, Inc., of Indianapolis Takes Entire Factory Output of Monroe Cars

"The Car That Convinces"

$995

f. o. b. Pontiac, Michigan



Monroe Five-Passenger Car Model M-6

Monroe Cars Now Backed By One of the Strongest Selling Organizations in the Country

The above announcement is of tremendous interest to motor car merchants who desire to strengthen their business.

FACTS ABOUT THE SELLING COMPANY

The WILLIAM SMALL COMPANY, Inc., is backed by an actual capitalization of ONE MILLION DOLLARS.

The WILLIAM SMALL COMPANY, Inc., dealer organization is large and successful. Association with this group of progressive merchants is a powerful asset to any motor car dealer.

The WILLIAM SMALL COMPANY, Inc., has already achieved a tremendous success in the motor car selling field, and this success is growing every day.

A FINE LINE OF CARS

MONROE CARS have been greatly improved and refined, and with quantity production assured, they have been listed at an astoundingly low price.

See the Monroe Line at the Automobile Show
Chicago Space 64 Armory

The MONROE is not an experiment. Thousands in use in all parts of the world.

Monroe Features Which Appeal To Buyers

The price is very attractive.

The motor is Monroe manufactured, valve-in-head, with counterbalanced crank shaft, "hot spot" manifold (insuring gasoline economy) and force feed lubrication through hollow crank shaft.

Rear springs are cross compound cantilever, giving an easy riding quality absolutely unequalled in any car of similar price and weight.

Frame is six inches deep, with running boards hot welded as integral part of frame. Long life and anti-squeak.

Differential is Monroe M and S, insuring hardest wheel pull where road resistance is greatest.

Wheel base is 115 inches.

Radiator is cellular.

Driving gears spiral bevel.

Equipment is complete.

Line comprises Touring Car, Roadster and Sedan.

We have room in our organization for additional dealers. If you are a "going" Motor Car Merchant and desire to affiliate with a large and successful merchandising organization that has behind it more strength and resources behind the Monroe Line, write or wire

THE WILLIAM SMALL COMPANY, Incorporated

Sole Sales Representatives of MONROE MOTOR CARS

832-60 North Capitol Avenue, Indianapolis, Indiana

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STEPHENS
Salient Six

Science in Design and Inspection

THE design of the Stephens Salient Six is unquestionably the most advanced engineering achievement of the present day. Its perfected overhead-valve engine which burns ALL the gasoline develops an actual fifty-seven horse power, yet this big, roomy car travels fourteen to eighteen miles on a gallon of gasoline.

Superior design is followed by equally superior inspection. The Stephens Salient Six is delivered to you as a perfect replica of the designer's drawings.

Three-passenger Roadster	$1485
Four-passenger Touring	$1550
Five-passenger Touring	$1485
Five-passenger Victoria	$1660
Five-passenger Touring Sedan	$1985

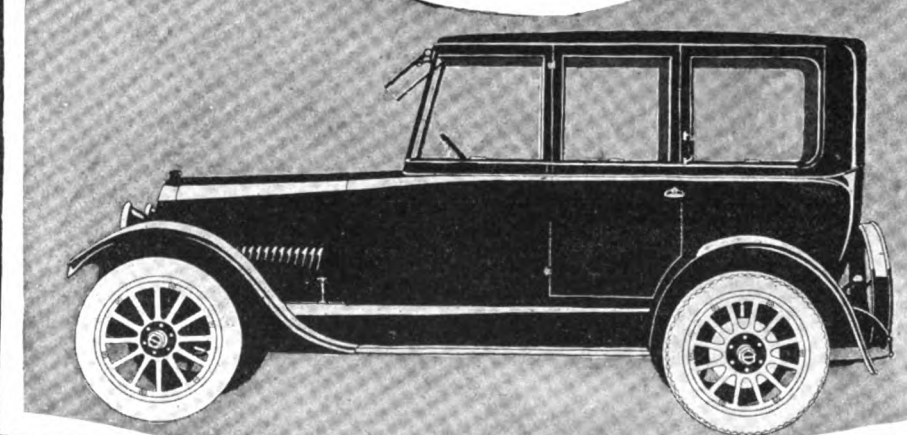
Prices F.O.B. Factory

See us at the Chicago Show, Space B-5, Armory

Stephens Motor Branch
of Moline Plow Co., *Moline, Illinois*

Factory: Freeport, Illinois

DEALERS: You know value when you see it. Investigate the Stephens Salient Six. It sells itself on demonstration.



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$7.00



FOR less than you pay for an ordinary spot-light you can get two searchlights in one—a Red Spot Searchlight—the double duty Searchlight.

You get all the advantages of a better-than-ordinary searchlight plus the protective value of a red danger signal. Your finger, pressed on a button, instantly converts the keen, powerful white beam to red—the universal "Take Care!" signal.

Red Spot Searchlight

will protect you and your car and help render night driving safe. Red Spot enables you to make roadside repairs in safety; turn, cross or stop in safety and, flashed behind, acts as an emergency tail light. Focus adjuster for concentrated beam or diffused light; adjustable mirror; dust-tight bezel; rattleless universal joint; brass —not steel—parabolic reflector; switch in handle.

Ask your dealer to **show** you a Red Spot Searchlight.

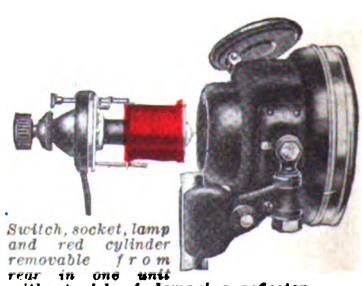
RED SPOT SEARCHLIGHT

Reg. in U. S. Pat. Off.

The F. W. Wakefield Brass Co.

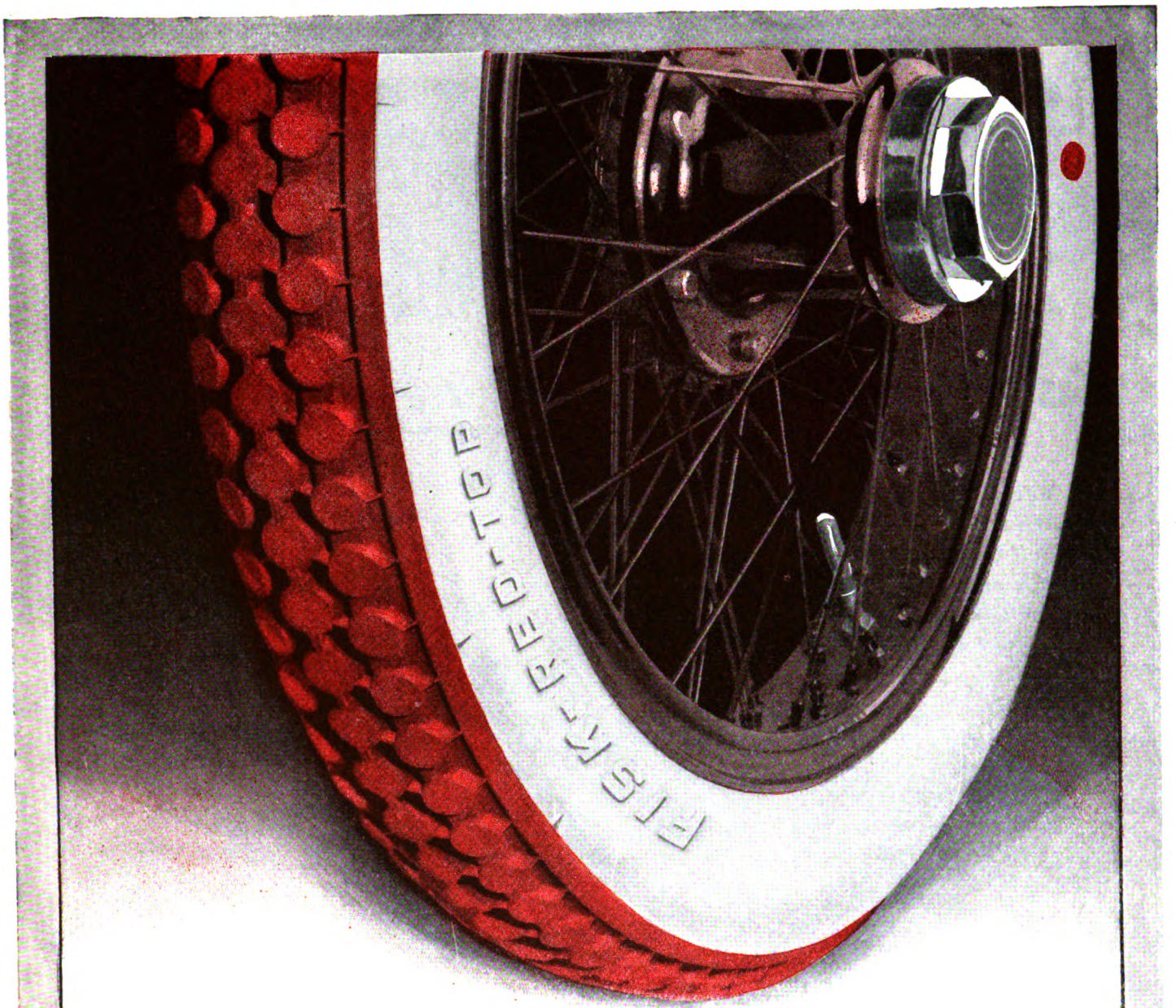
10 Wakefield St., Vermilion, Ohio

DEALERS let us give you details on this rapid seller



Switch, socket, lamp and red cylinder removable from rear in one unit without risk of damaging reflector.

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Time to Re-tire?
(Buy Fisk)

THE most conspicuous example of tire beauty, mile producing quality, sturdy strength and downright honest value on the market. Made only with the famous Fisk Non-Skid tread. The best tire bet a wide-awake dealer can make—a never ending source of profit.

Write Dept. 23 for complete details of the Fisk dealer proposition. The Fisk Rubber Co. of N. Y., Chicopee Falls, Mass.

FISK RED TOP

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Ford Owners — Use Kerosene!

Help Conserve the Nation's Gasoline Resources and

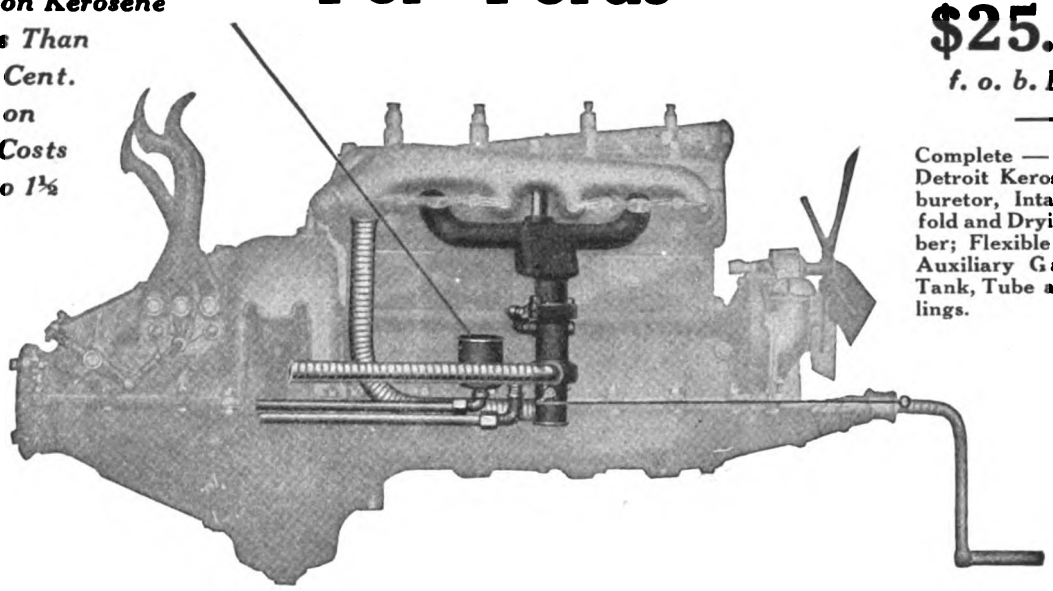
Save 60% on Your Mileage Cost

Buy a Detroit *Kerosene* Equipment For Fords

One Mile on Kerosene Costs Less Than One-Half Cent. One mile on Gasoline Costs from 1¼ to 1½ Cents.

Price $25.00 *f. o. b. Detroit*

Complete — **including** Detroit Kerosene **Carburetor**, Intake **Manifold** and Drying **Chamber**; Flexible **Tubings**; Auxiliary **Gasoline** Tank, Tube **and Couplings.**



Detroit Kerosene Equipment attached to Ford Engine showing the entire installation except the Gasoline tank located under floor board.

This equipment actually accomplishes what others have hoped and claimed for their so-called kerosene carburetors. It uses **cheap** kerosene (coal oil) as a highly efficient and satisfactory motor fuel.

Our Kerosene Carburetor (patents pending) has only one float chamber (for kerosene)—a three way valve admits the gasolene for starting.

Is non-adjustable — throttles down smoothly—idles without loading—increases mileage—is a positive fuel and money-saver— makes no condensation in cylinders and reduces speed changing.

Simply Installed— 1. Drill a 7/8-inch hole into center of exhaust manifold. 2. Remove intake manifold. 3. Clamp on new manifold.

These are days of Strict Economy. Act promptly!

DETROIT KEROSENE CARBURETOR CO. DEPT. 21 KRESGE BLDG. **DETROIT**

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New Series
UNITED TRUCKS
At Chicago

The new series models of UNITED motor trucks for 1918 will be on exhibition in Chicago during the Automobile Show at 1231 Wabash Avenue.

The UNITED line embodies models of 1, 2, 3½ and 5 ton capacity, all worm drive.

The big idea back of the UNITED line is to build the finest job possible, yet priced at a reasonable figure. Whether or not we have achieved our ambition, we leave to your own good judgment.

As standard equipment, the UNITED offers bumper, radiator guard, hubodometer, and painting.

Immeaiate Deliveries

during 1918 starting February First.

It will pay you to visit 1231 Wabash Avenue, Chicago, when at the show

UNITED MOTORS COMPANY

671 North Street, GRAND RAPIDS, MICHIGAN

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Tillotson CARBURETOR

THE economy and efficiency of a carburetor depends upon its ability to produce a perfect power-giving mixture of gasoline and air at all times and at all engine speeds, ranging from the highest to the lowest.

Engineers who have made exhaustive tests of the Tillotson will vouch for its ability to produce such a mixture under all conditions of service.

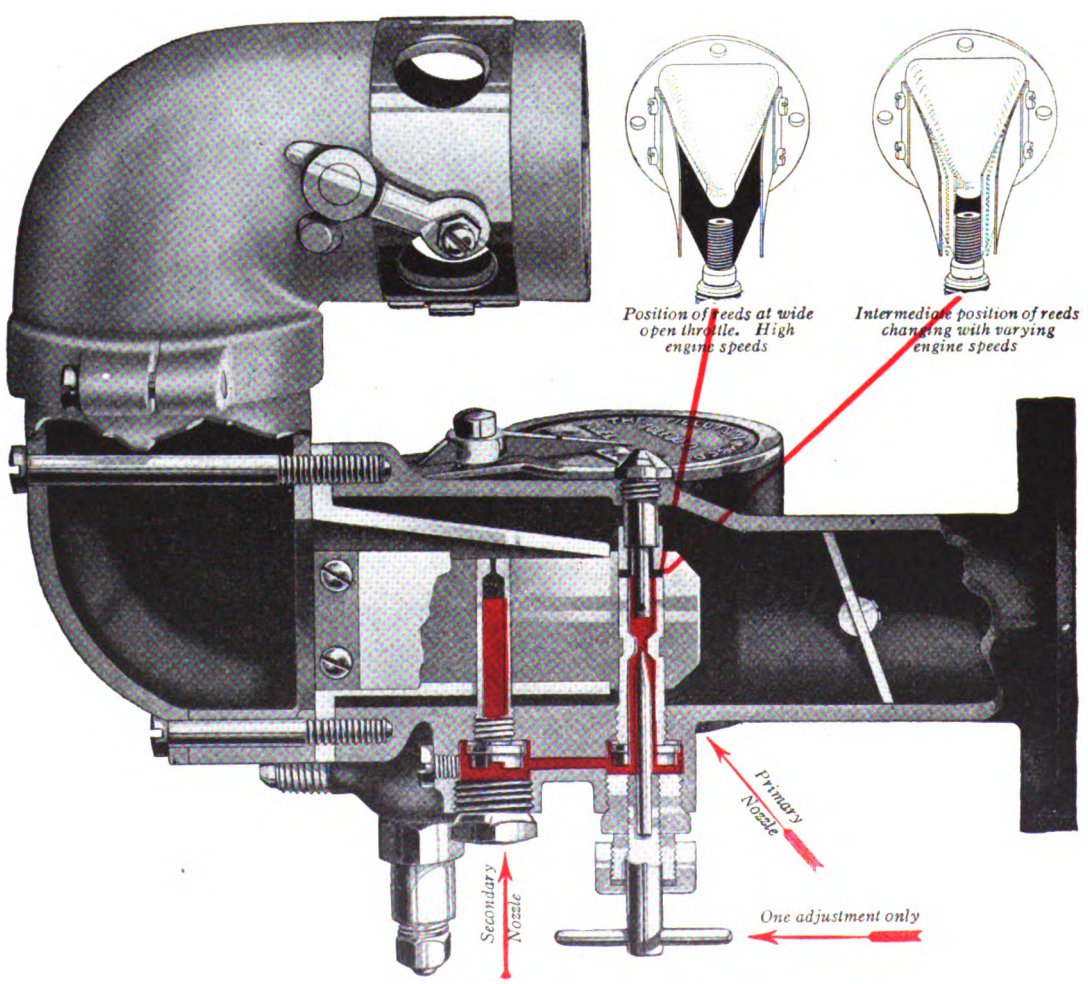
Model "C" shown below is equipped with the same automatic air valve arrangement that features all Tillotson models and is also provided with both Primary and Secondary fuel supply nozzles.

The Primary nozzle furnishes fuel at *all* engine speeds but at the *slower* engine speeds is the *only* one in operation and is the *only* one provided with an adjustment.

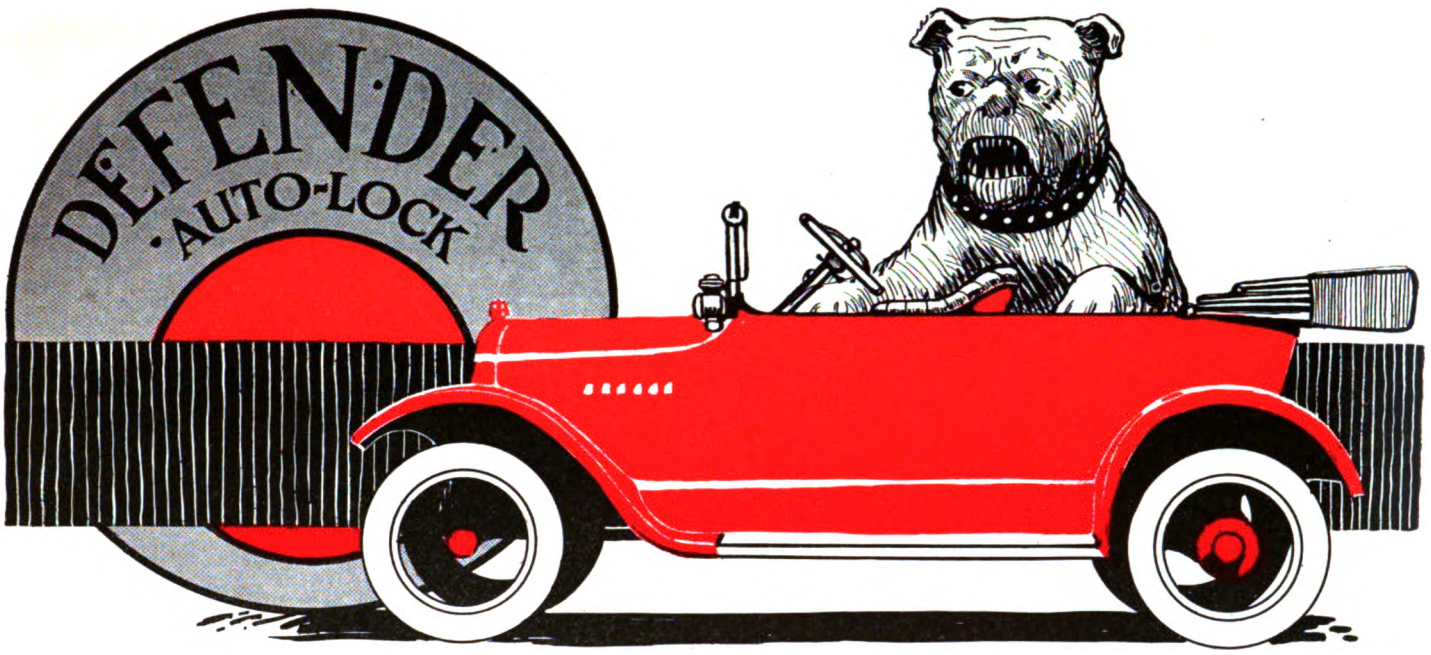
The Secondary nozzle gives the added amount of fuel for *high* engine speeds and furnishes fuel at the *higher* engine speeds *only*.

Too rich a mixture or too lean a mixture is unknown to users of Tillotson Carburetors.

The Tillotson Manufacturing Company
Toledo, Ohio



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The DEFENDER Auto Lock
For Fords
Keeps Cars Where Owners Put Them

If every Ford owner could leave a big, well-trained bull dog in his car, for protection at the curb, automobile thieves would leave Ford cars pretty well alone.

The DEFENDER Auto Lock has the same effect on thieves. It sticks on the job like a bull dog—and it won't let go.

If it is possible to force a DEFENDER Lock—**so far one has never been forced**—it would take even the most experienced crook so long to do it, that he would be caught before he could get away.

Thieves are looking for quick get-aways. **They steal cars that are not adequately locked.** A DEFENDER Lock is practically a guarantee that no thief will **try** to steal the car. It is more than a guarantee that **he can't do it** if he does try.

Five Big Reasons Why Defender Lock Sells

1—Locks and protects coil units with hardened steel band (Patent pending.)

2—A beautiful, polished solid aluminum casing; locks over switch. (Patent pending.)

3—Operates against the ignition by special grounding device. (Patent pending.)

4—Guaranteed for the entire life of car, and backed by a company fulfilling every sound business principle to the last ditch.

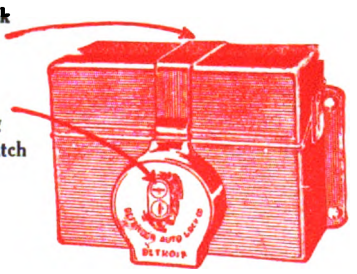
5—Recognized and used as a standard of perfection by insurance underwriters and saves 15% on insurance.

DEALERS—Write us for free illustrated literature and complete details. ALL JOBBERS.

Price, Complete, Only

$3.50

The Double Lock That Locks the Box and Locks the Casing Covering the Switch



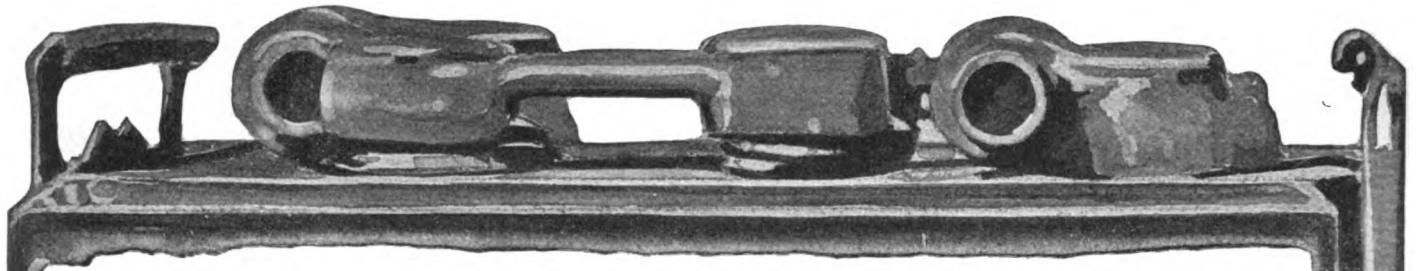
PATENT APPLIED FOR

DEFENDER AUTO LOCKS SELL FOR SAFETY

DEFENDER AUTO LOCK COMPANY

5th Floor, Marquette Bldg. Detroit, Mich.

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The *Original* Super-Hard Plates

are built by the Gould Storage Battery Company, in the only complete plant in America for the manufacture of batteries from pig lead to the finished plates.

They were perfected ten years ago and have never been equalled for strength and staying-power. They have been imitated, but never successfully.

Because they are the basis of Gould Quality, and because plate-quality depends on the quality of lead oxide used, the Gould Storage Battery Company manufactures its own oxides from the pig lead.

Write our nearest distributor

Gould Storage Battery Co.

30 East 42nd Street, New York

Detroit Chicago Cleveland Philadelphia
Los Angeles San Francisco

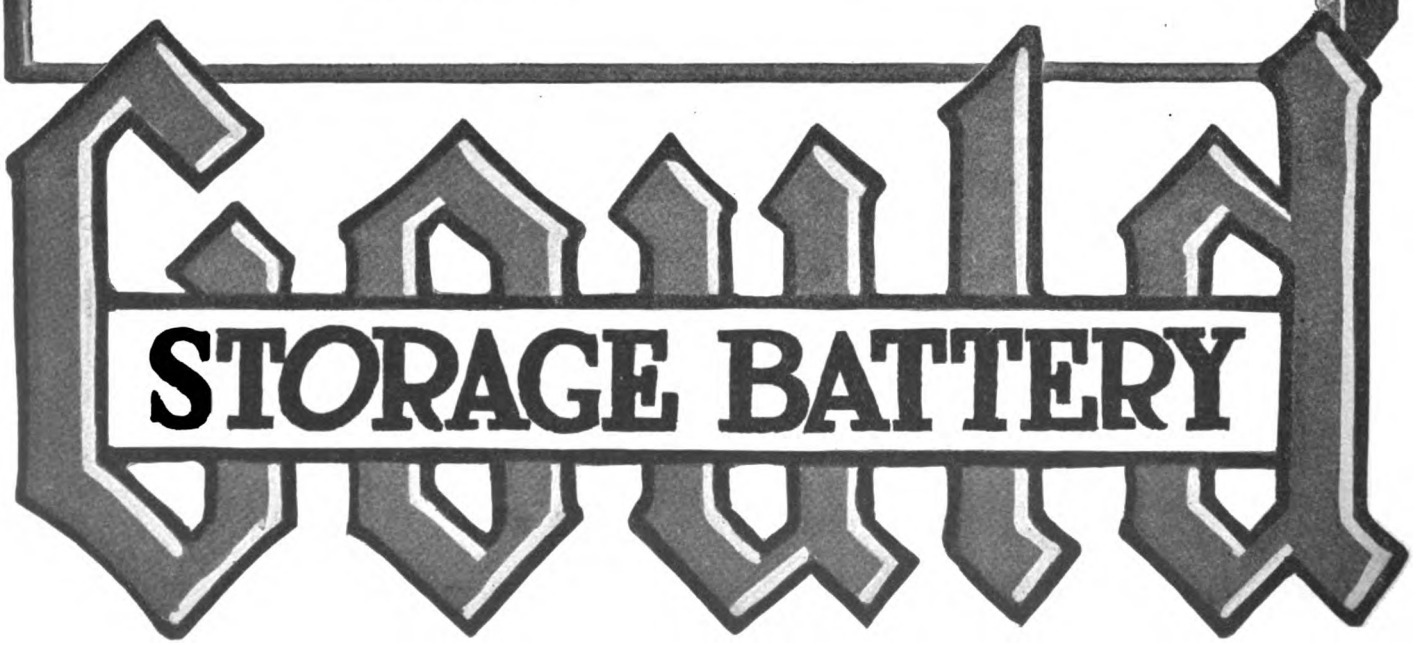
PLANT: Depew, N. Y.

DISTRIBUTORS

Julius Andrae & Sons Co.
Milwaukee, Wis.
L. R. Bach & Co.
Denverr, Col.
B-R Electric Co.
Kansas City, Mo.
Capital Electric Co.
Salt Lake City, Utah
Doubleday-Hill Elect. Co.
Pittsburgh, Pa.
Washington, D. C.
Fobes Supply Co.
Portland, Ore.
Seattle, Wash.
The McGraw Co.
Sioux City, Ia.
Omaha, Neb.
Jones-Beach Co.
Philadelphia, Pa.
The Motor Car Equipment Co.
New York City.
Gray Electric Co.
Springfield, Ohio
Northwestern Elect. Equip. Co.
St. Paul, Minn.
Queen City Motor Del. Co.
Cincinnati, Ohio
Robertson-Cataract Elect. Co.
Buffalo, N. Y.
Spencer-Carroll Co.
Waco, Texas
Varney Elect. Supply Co.
Indianapolis, Ind.
Evansville, Ind.
Wesco Supply Co.
St. Louis, Mo.
Wetmore-Savage Co.
Boston, Mass.
Weinstock-Nichols Co.
Los Angeles, Cal.
Oakland, Cal.
San Francisco, Cal.
Woodward Carriage Co.
San Antonio, Texas

CANADA

George J. Beattie
Toronto
R. E. T. Pringle
Toronto
The Chapin Co.
Calgary
International Elect. Co.
Montreal
Wood, Vallance & Leggett
Vancouver
John Starr Son & Co.
Halifax, N. S.



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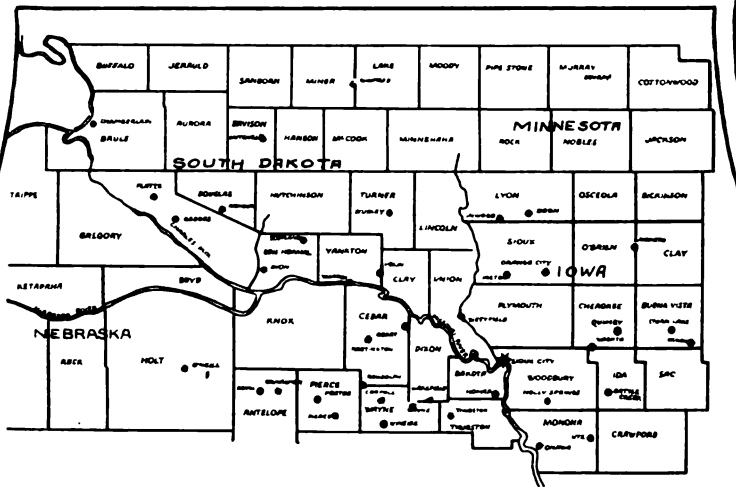
LIBERTY SIX



WILLIAM WARNOCK
President of the William Warnock Company, distributors of Liberty motor cars out of Sioux City, Iowa

What One Liberty Dealer Has Done

The map below shows the territory of the William Warnock Company. As the red dots indicate, they have signed up 43 Liberty dealers in their territory.



They could not have accomplished such intensive distribution in so short a period had the Liberty not been far above the ordinary.

Five Passenger Touring	$1350.00
Two Passenger Roadster	1350.00
Four Passenger Roadster	1350.00
Sedan	1925.00
Brougham	2700.00
Landaulet	2700.00

Liberty Motor Car Company

Detroit

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William Warnock of Sioux City, Iowa, is familiar to every dealer in the Northern Central West as a man who has attained unusual success in the automobile trade.

The Warnock Company have succeeded in securing Liberty dealer contracts in almost every worthwhile county in their territory; in some instances, two and three to a county.

Their success is the more remarkable, because a large part of their territory is thinly settled and difficult to cover, owing to the rough nature of the country and its "prairie" roads.

The good name and intensive methods of a competent sales organization are largely responsible for this splendid showing. At the same time the officials of the William Warnock Company admit that they could not have accomplished as much as they have in so short a time, were it not for the fact that the Liberty delivers an unusual service.

"We credit our success," says B. H. Brown, sales manager of the company, "largely to the exceptional amount of owner-interest created by the car, and the perceptible *difference in the way it rides and drives*.

"For the first time in our experience we have been able to offer, in a car of moderate size, the same riding comfort that has hitherto been confined to the heavier, costlier cars.

"In some parts of our territory, motor cars are subjected to terrific strains of stamina and power. The Liberty has stood up to them all in a way that is gratifying and continually makes new friends for the car."

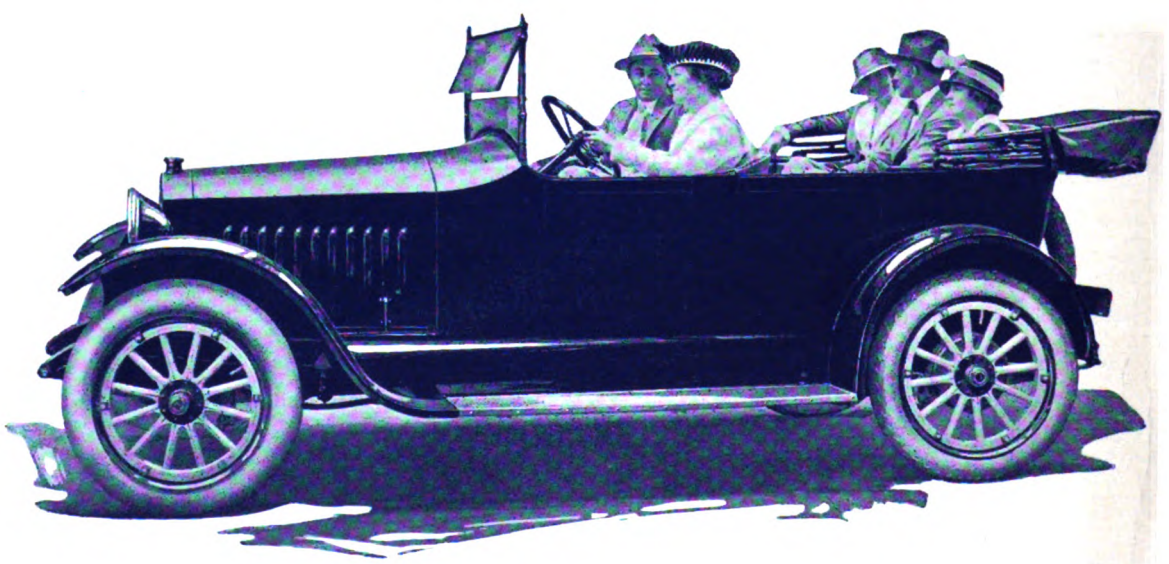
We believe the experience of the William Warnock Company positively proves that the Liberty franchise is a live and valuable asset wherever it is capably handled.

Providing you have the desire and the organization there is no reason why you cannot duplicate the Warnock success with the Liberty in your own territory.

Get in touch with us. We have a limited number of openings. Maybe one of them is available for you.

Liberty Motor Car Company

Detroit



LIBERTY SIX

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Standford SRB
TRADE MARK REGISTERED

BEARINGS will outlast your car

Add this element of safety to your FORD and avoid future annoyance from broken bearings

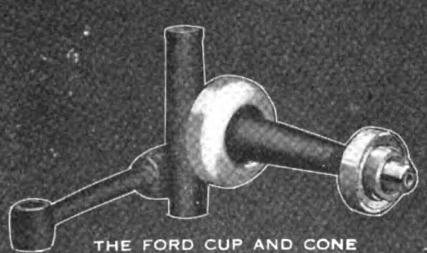


STANDFORD BEARING ASSEMBLED ON FORD SPINDLE

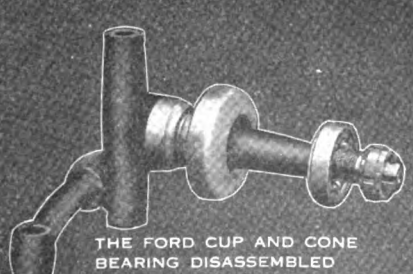
An IMPROVED TAPER BEARING for FORD Front wheels



STANDFORD BEARING DISASSEMBLED ON FORD SPINDLE



THE FORD CUP AND CONE BEARING ASSEMBLED ON FORD SPINDLE



THE FORD CUP AND CONE BEARING DISASSEMBLED ON FORD SPINDLE

This new member of the S R B Taper Roller Bearing family is a strictly high grade bearing in every particular of design, material and workmanship—and must not be confounded with shoddy substitutes. It is produced from the highest grade of Chrome Alloy Steel. It is made with the same care and precision as our regular S R B Taper Roller Bearing and will give the same high degree of service and satisfaction.

You can make the change in 15 minutes

Anyone, with the aid of a wrench, can remove the original cup and cone bearings from the front wheels of a *Ford* car and replace them with these wear-resisting SRB "Standford" Taper Roller Bearings. No change is necessary in the *Ford* construction.

Greatly enlarged factory facilities make it possible for us to promise prompt delivery on all specifications and orders for S R B "Standford" Bearings.

S R B is recognized everywhere as the insignia of one of the first and largest bearing manufacturers in the world, and as such wherever it appears on a bearing it is a guarantee of high quality.

Prices and other information on request to Service-Sales Department

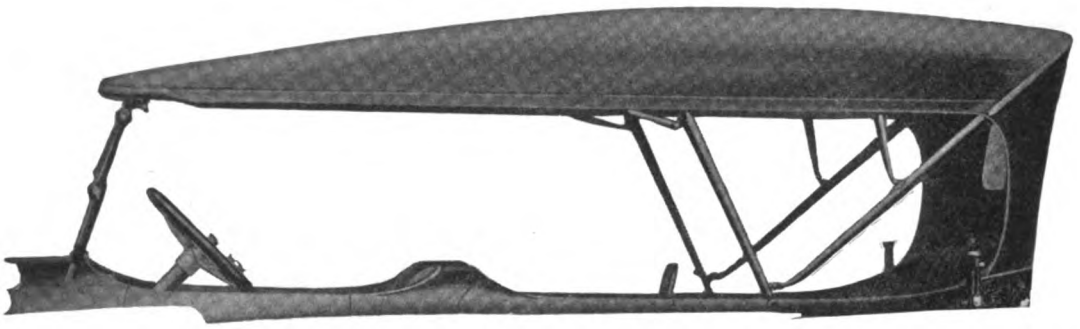
STANDARD ROLLER BEARING COMPANY
PHILADELPHIA, PA., U. S. A.

Makers of S R B Annular Ball Bearings, Taper Roller Bearings, Steel Balls and *Rudge-Whitworth* Wire Wheels

Sales Offices:

Detroit, Mich., 936 Woodward Ave. *Indianapolis, Ind.*, 822 Hume-Mansur Bldg.
Chicago, Ill., 2206 So. Michigan Ave. *Boston, Mass.*, 163 Massachusetts Ave.
Cleveland, Ohio, 2062 Euclid Ave.

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A DrideK Top Does Help to Sell Cars

A DrideK Top Increases the Value of a Car Far More Than It Costs

TRADE DRIDEK MARK REG.

The Most Remarkable Top Material Yet Produced

Now is the time that you should look into DrideK and have it on hand to meet the demand which is sure to come.

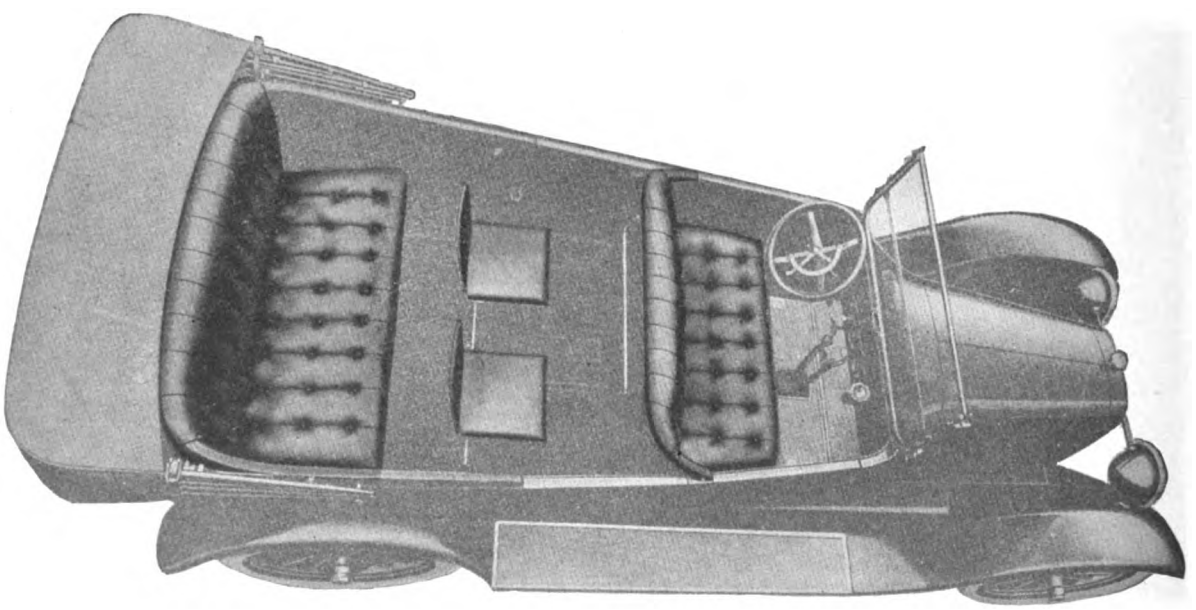
DrideK is very pliable, easy to work and will not scratch or chafe. It makes a remarkable top.

Send for samples and prices. Then get DrideK in stock—it will make money for you.

L. J. MUTTY COMPANY

BOSTON, MASS.

DrideK Upholstery Makes the Car Look New



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Bearings Service Exhibits in Twenty-two Cities

We're having an "Auto Show" all our own—and not merely one, but twenty-two of them—one at each of our twenty-two branches.

There's much of interest at these exhibits for every automobile dealer, garage-man and motorist. You'll find here for inspection, Timken, Hyatt and New Departure bearings of every size ever used in motor vehicles—besides valuable books and literature to assist you in getting a maximum of service out of the bearings in your own motor car.

These exhibits will continue during the entire month of January. Don't fail to attend the one at our branch nearest you—and get your souvenir.

Branches In These Cities

New York	Los Angeles	Kansas City	Indianapolis	Omaha
Detroit	Atlanta	Dallas	Philadelphia	Pittsburg
Chicago	Seattle	Cleveland	St. Louis	Portland, Ore.
Boston	Minneapolis	Denver	New Orleans	Toronto, Can.
San Francisco				Rochester

BEARINGS SERVICE COMPANY

General Offices

BEARINGS SERVICE COMPANY

Detroit, Michigan

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BEST IN THE LONG RUN

FAIR TREATMENT

Begin 1918, A TESTED TIRE Dealer

CERTAINTY of product and certainty of profit are the foundation stones on which Goodrich urges the tire dealer to build 1918 business. In the coming critical year, the dealer must have *sure* profit. The tire user will demand *sure* tire service. Goodrich provides both in Goodrich Tested Tires.

From the great national testing of the Test Car Fleets—Goodrich brings certainty of tire service to the dealer, proved in thousands and hundreds of thousands of miles of wear-and-tear tests.

SILVERTOWN CORDS or **BLACK SAFETY TREADS,** Goodrich Tires have conquered the roughest roads, and won their right to the title, "America's Tested Tires." The roads of America vouch for—

GOODRICH

TESTED 

TIRES

THE Goodrich Dealer, *sure* of his *tested* product, is *sure* of his profit, because the greatest forces in tire selling are back of him for 1918.

Read all the Goodrich dealer sign "Goodrich Tested Tires" means to you, a tire dealer.

It means quick sales, turning your money over again and again during the year; for the long record of Goodrich good faith, backed by the word and deed of TESTED, will bring to your store the motorist demanding the *sure service* of *proven tires.*

THE CITY OF GOODRICH · AKRON, OHIO.

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BEST IN THE LONG RUN

FAIR TREATMENT

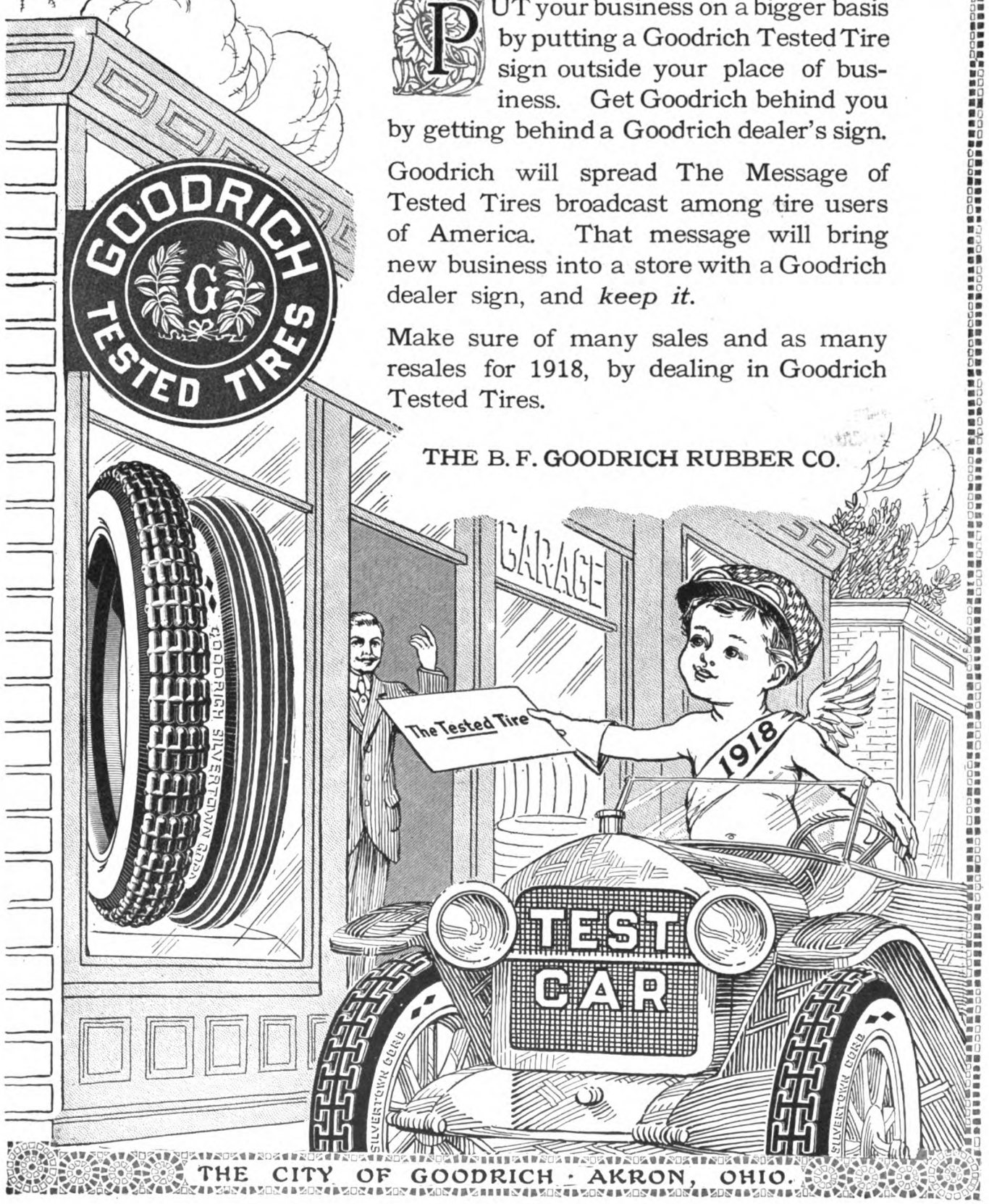
Enlist a Goodrich Dealer Sign

PUT your business on a bigger basis by putting a Goodrich Tested Tire sign outside your place of business. Get Goodrich behind you by getting behind a Goodrich dealer's sign.

Goodrich will spread The Message of Tested Tires broadcast among tire users of America. That message will bring new business into a store with a Goodrich dealer sign, and *keep it.*

Make sure of many sales and as many resales for 1918, by dealing in Goodrich Tested Tires.

THE B. F. GOODRICH RUBBER CO.



THE CITY OF GOODRICH · AKRON, OHIO.

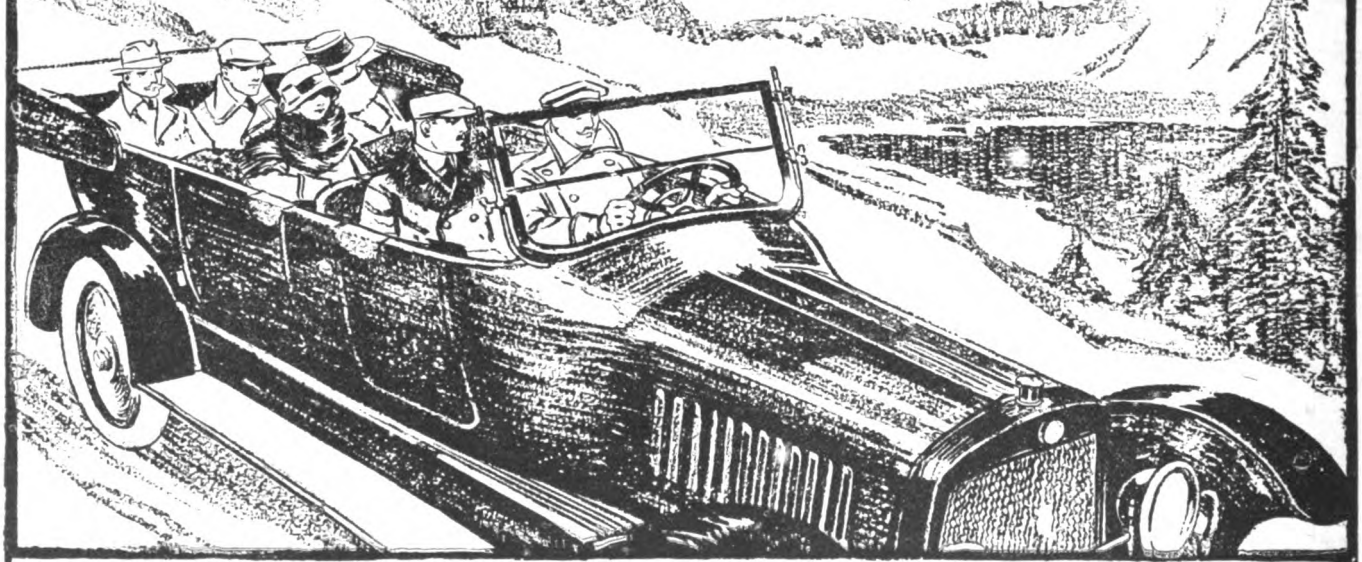
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Cooling

¶ The cooling system that guards the high-speed aeroplane engine of the Standard "8" has never been known to fail. ¶ "Hot engine" is unknown in this 83 horsepower motor. ¶ After 50,000 miles of hard touring, your engine is as proficient as after 1000. The Standard "8" will see you through. ¶ This great cooling system means greater power on grade and mountain—and the greater riding comfort that ensues from confidence. ¶ Ride just once at the wheel of this flying wedge of steel and style, and indecision as to what car to buy will vanish. Especially when you discover that the Standard is listed $500 less than any car that begins to approach it in ability. ¶ 83 H. P.— 127-inch wheelbase—optional upholstery and color. ¶ Distributors and dealers in territory still open are invited to call on any of our representatives for a ride in this truly wonderful car.

Prices, $2450 to $4000

STANDARD STEEL CAR CO.
Pittsburgh, Pa.



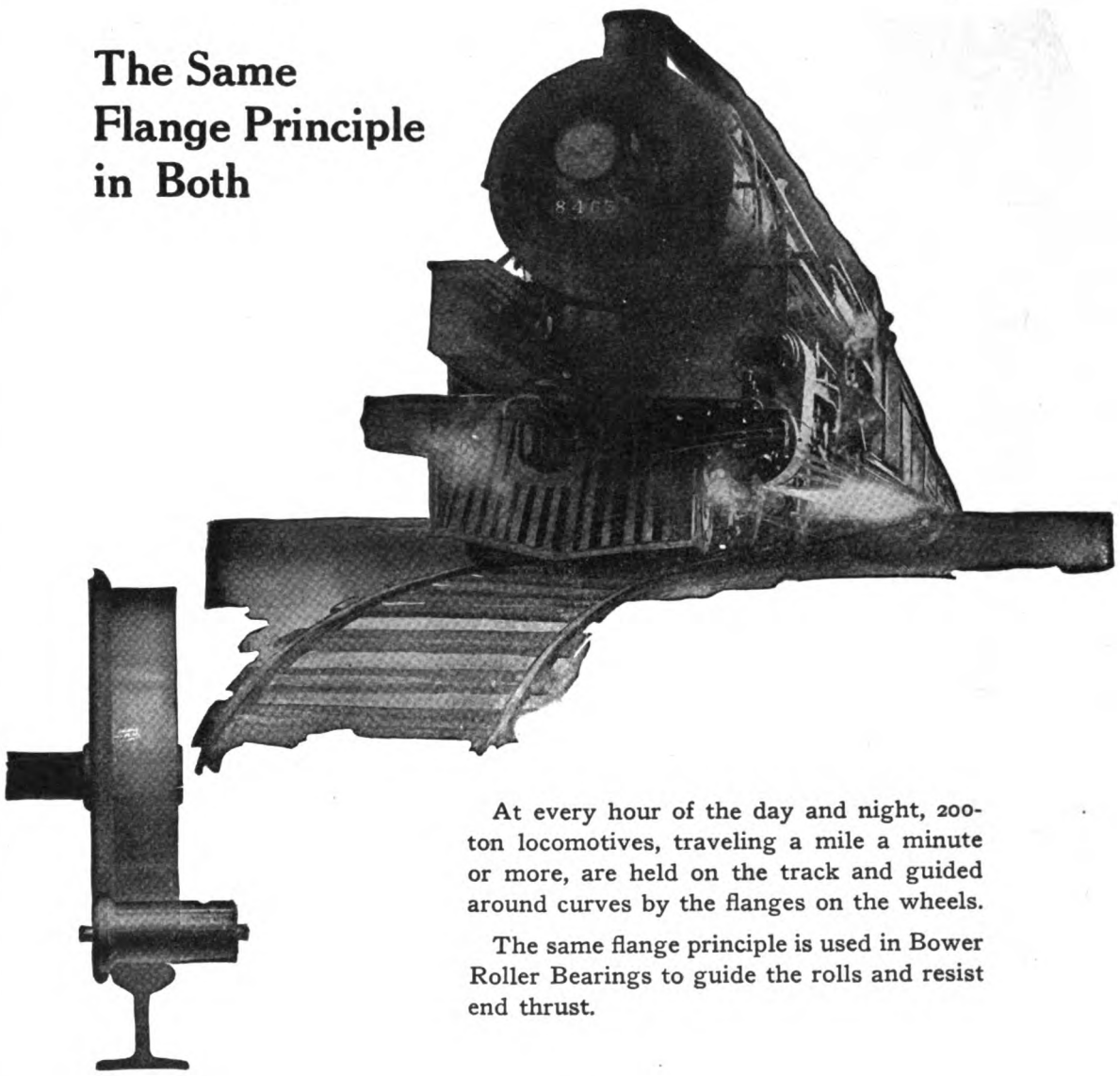
STANDARD "8"

The Magneto Equipped Eight

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BOWER SAVES POWER

The Same Flange Principle in Both



At every hour of the day and night, 200-ton locomotives, traveling a mile a minute or more, are held on the track and guided around curves by the flanges on the wheels.

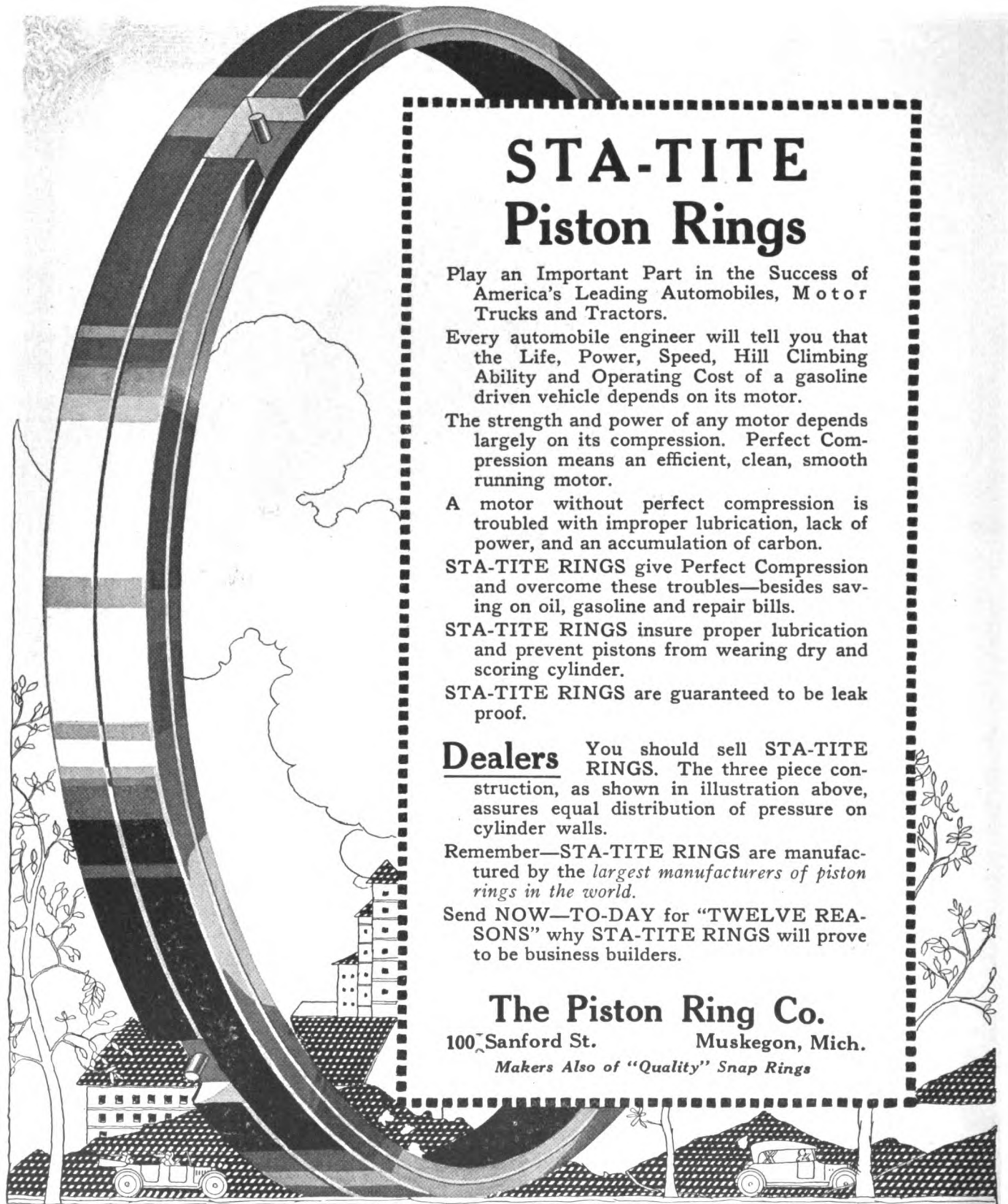
The same flange principle is used in Bower Roller Bearings to guide the rolls and resist end thrust.

BOWER

ROLLER BEARING CO.

Detroit Michigan

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STA-TITE Piston Rings

Play an Important Part in the Success of America's Leading Automobiles, Motor Trucks and Tractors.

Every automobile engineer will tell you that the Life, Power, Speed, Hill Climbing Ability and Operating Cost of a gasoline driven vehicle depends on its motor.

The strength and power of any motor depends largely on its compression. Perfect Compression means an efficient, clean, smooth running motor.

A motor without perfect compression is troubled with improper lubrication, lack of power, and an accumulation of carbon.

STA-TITE RINGS give Perfect Compression and overcome these troubles—besides saving on oil, gasoline and repair bills.

STA-TITE RINGS insure proper lubrication and prevent pistons from wearing dry and scoring cylinder.

STA-TITE RINGS are guaranteed to be leak proof.

Dealers You should sell STA-TITE RINGS. The three piece construction, as shown in illustration above, assures equal distribution of pressure on cylinder walls.

Remember—STA-TITE RINGS are manufactured by the *largest manufacturers of piston rings in the world.*

Send NOW—TO-DAY for "TWELVE REASONS" why STA-TITE RINGS will prove to be business builders.

The Piston Ring Co.

100 Sanford St. Muskegon, Mich.

Makers Also of "Quality" Snap Rings

STA-TITE PISTON RINGS

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IS THIS MOTORIST



LOOKING FOR YOUR GARAGE ?

He is one of the tens of thousands of motorists who have learned of SE-MENT-OL and other Norwesco products through the greatest advertising campaign ever conducted in the Saturday Evening Post on chemical automobile utilities. This campaign is now on, ***full blast***—and it's going to continue throughout the year.

NORWESCO

The Chemically Correct Line

was known to more than a million motorists before this great Saturday Evening Post campaign began. Think then what this advertising will do! Think of this campaign, backed by a million boosters who want their brother motorists to receive the same benefits SE-MENT-OL and other Norwesco products give to them.

SE-MENT-OL, as you doubtless know, is a radiator cement which quickly "finds the leak and fixes it"—a product which is safe and sure because it is "Chemically Correct," like all Norwesco products.

Mail the coupon for complete information regarding our introductory assortment and display stand featuring Norwesco products nationally advertised.

The Northwestern Chemical Co.
421 State Street, MARIETTA, OHIO, U.S.A.

Other Norwesco Products:

SKALEX
The Radiator Cleaner

Prevents engine overheating. Removes all scale, rust and sediment. Cannot harm radiator or hose.

NORWESCO
Top and Upholstery Dressings

Makes Leather and Pantasote Tops and Upholstery look like new. Penetrates—waterproofs—preserves.

A special dressing for Mohair Tops and all Top Linings. Makes them rain-tight and spotless.

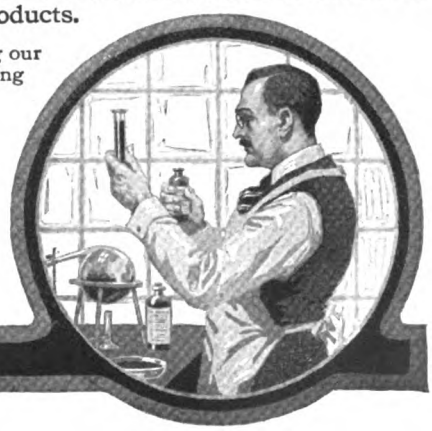
UTILITY BLACK
For Metal Parts

Dries hard and glossy in one hour. Ideal for touching up body, fenders, radiator, hood, engine. Stands heat.

NORWESCO
Valve-Grinding Compound

Gives tight, efficient valves. Easy to work with. Saves time and trouble. No ground glass or emery.



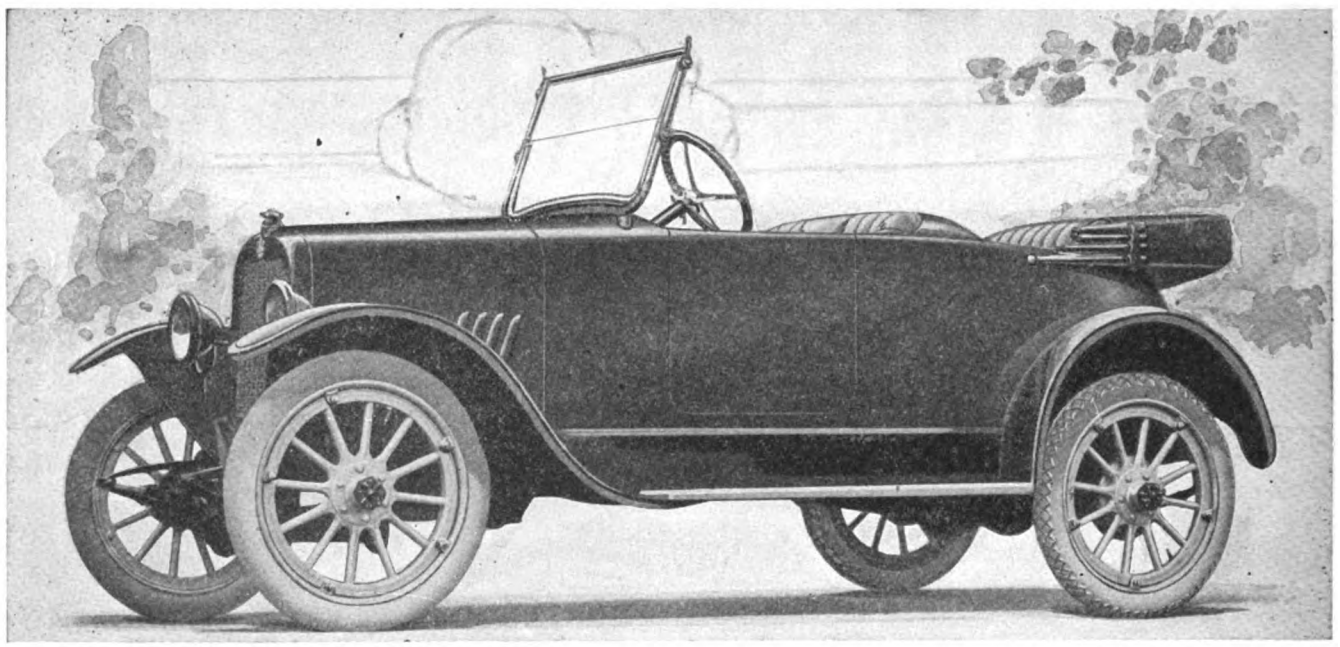


The Northwestern Chemical Co.,
421 State St., Marietta, Ohio, U. S. A.
Please send me complete information regarding your Introductory Assortment and Display Stand.

Name .....

Address .....

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Approved by Throngs at the New York Show

Briscoe interest was amazing. Countless thousands came — saw — and marveled at Briscoe value, Briscoe beauty, Briscoe all 'round utility.

This is an omen to dealers. A reflection of even greater Briscoe demand in 1918. The dealer who wants to make money throughout the whole new year, cannot afford to ignore the Briscoe verdict of the great crowds at the show.

99% Factory Built

The Briscoe is **right, mechanicall y and in price,** to meet selling conditions as they exist right now.

Famous Half-Million Dollar Motor means greatest utility—the utmost economy in operation. 25 to 30 miles to the gallon—real service in every respect.

Fine finish—ample dimensions—extremely good to look at.

99% built in ten Briscoe factories at Jackson. This means greatest possible value. You'll sell more cars—and make more money—if you sell the Briscoe.

A complete line—seven distinctive models. Write immediately for new dealer plan.

BRISCOE MOTOR CORPORATION

Dept. 151 **JACKSON, MICHIGAN**

BRISCOE $725

THE CAR WITH THE HALF-MILLION DOLLAR MOTOR

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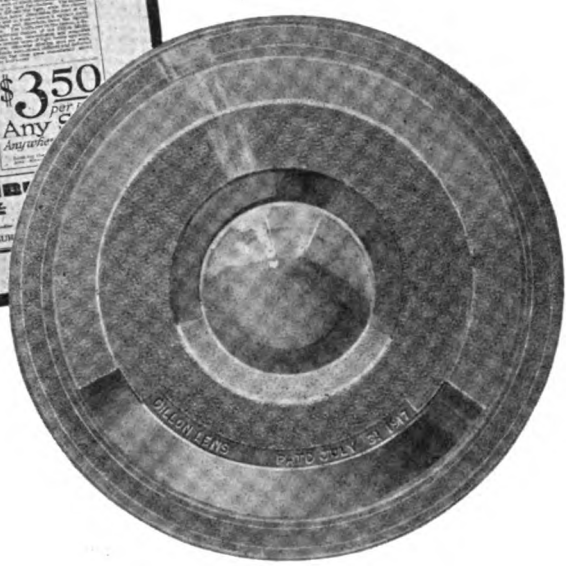
DILLON MULTI VISION LENS



$3.50 per pair

any size

anywhere in U. S. A.



A RECENT advertisement describing the scientific features and individual merits of the Dillon Multi-Vision Lens. Its exclusive advantages are already known to thousands.

The facts behind the Dillon—

Do you know that the average lens, while conforming to the law, does not meet ***your*** requirements? By eliminating glare you protect your brother motorist—but you can't afford to sacrifice ***your own safety!***

Only the Dillon Multi-Vision Lens can assure you the same degree of safety that the approaching motorist enjoys.

The Dillon projects a square path of light instead of a dangerous triangular beam. ***This is a scientific achievement in itself.***

The Dillon casts a far-reaching light, illuminating the road for over 500 feet ahead and for over 25 feet on either side. No other Lens can do this!

The Dillon prevents glare without blocking the light. It gives you twice the lighted area—safe, glareless, ***complete*** illumination.

Any of these features alone makes the Dillon your best choice. The Dillon gives you ***all*** these exclusive advantages minus the objectionable points of the ordinary lens. Ask your dealer—or order direct, giving your dealer's name.

Dealers—**Get the facts—get behind the Dillon—get your share of Dillon business. Write at once for extraordinary proposition.**

NATIONAL DISTRIBUTING BUREAU INC.

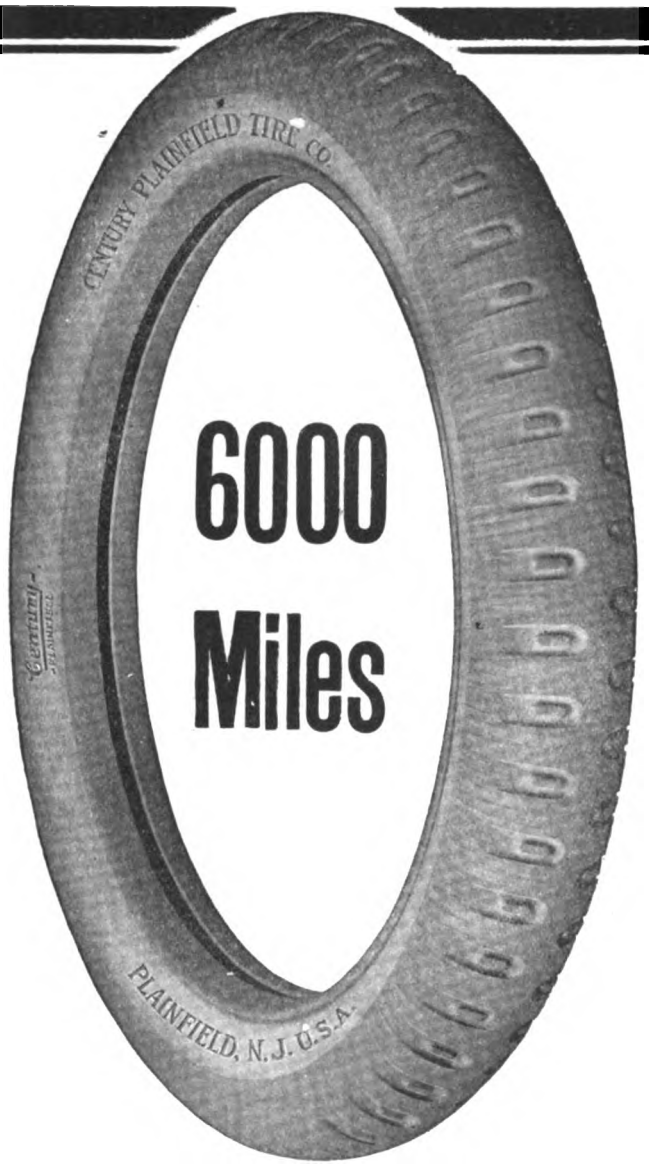
Exclusive Distributors NB **of the Dillon Lens**

241 Oliver Building, Pittsburgh, Pa.

The Dillon Lens is manufactured by the Dillon Lens & Mfg. Co., Wheeling, W. Va.

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The Tire That Goes Out and Gets Business



Every time you sell a Century-Plainfield Tire you're sending out a salesman.

The man who bought comes back—certainly—he's a booster, but better yet—his friends come, too.

Century-Plainfield popularity is founded on performance. They have an inbuilt capacity to negotiate extra miles. Under all conditions they give the very limit of wear.

"Quality First"—that's the Century-Plainfield slogan and on that formula they're built.

The very finest quality of materials in the world go into their makeup and these are combined and fashioned into shape by time-seasoned experts.

No whit of anything that would make for better tires has been neglected.

Century-Plainfield agencies may be secured by high class dealers—and with the privilege of handling this great line will go the complete co-operation of the Century-Plainfield organization and an opportunity for generous and continued profits.

CENTURY-PLAINFIELD TIRES

CENTURY-PLAINFIELD TIRE CO.,

Century-Plainfield Tire Company, a subsidiary of the Rubber Insulated Metals Corporation, Exclusive manufacturers of the RIMCO Rubber Products by the EL-CHEMCO process.

Plainfield - - - - - - - - - New Jersey

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A TIP from "JEM COE" The Traffic Cop



"I think a Rear Bumper is nearly as necessary as a tail light," says JEM COE.

—and a great many motorists are beginning to think so, too. With good reason. Most bumps come from behind —and a smashed, leaking, rear gas tank is too likely to mean a burned-up car.

That's one of the chief reasons why so many motorists are protecting their cars, front *and rear*, with

Gemco MILWAUKEE TRADE MARK **End-Thrust Bumpers**

Are you "in" on this GEMCO business? Much of it is *double sale business*, remember, and GEMCO advertising in the national periodicals is *producing*.

Better add GEMCO Bumpers to your stock of quick-turnover goods. They come in Diamond and Channel bars to fit all cars.

Write today to your jobber, or direct to

GEMCO MANUFACTURING COMPANY
756 South Pierce Street
Milwaukee, Wisconsin

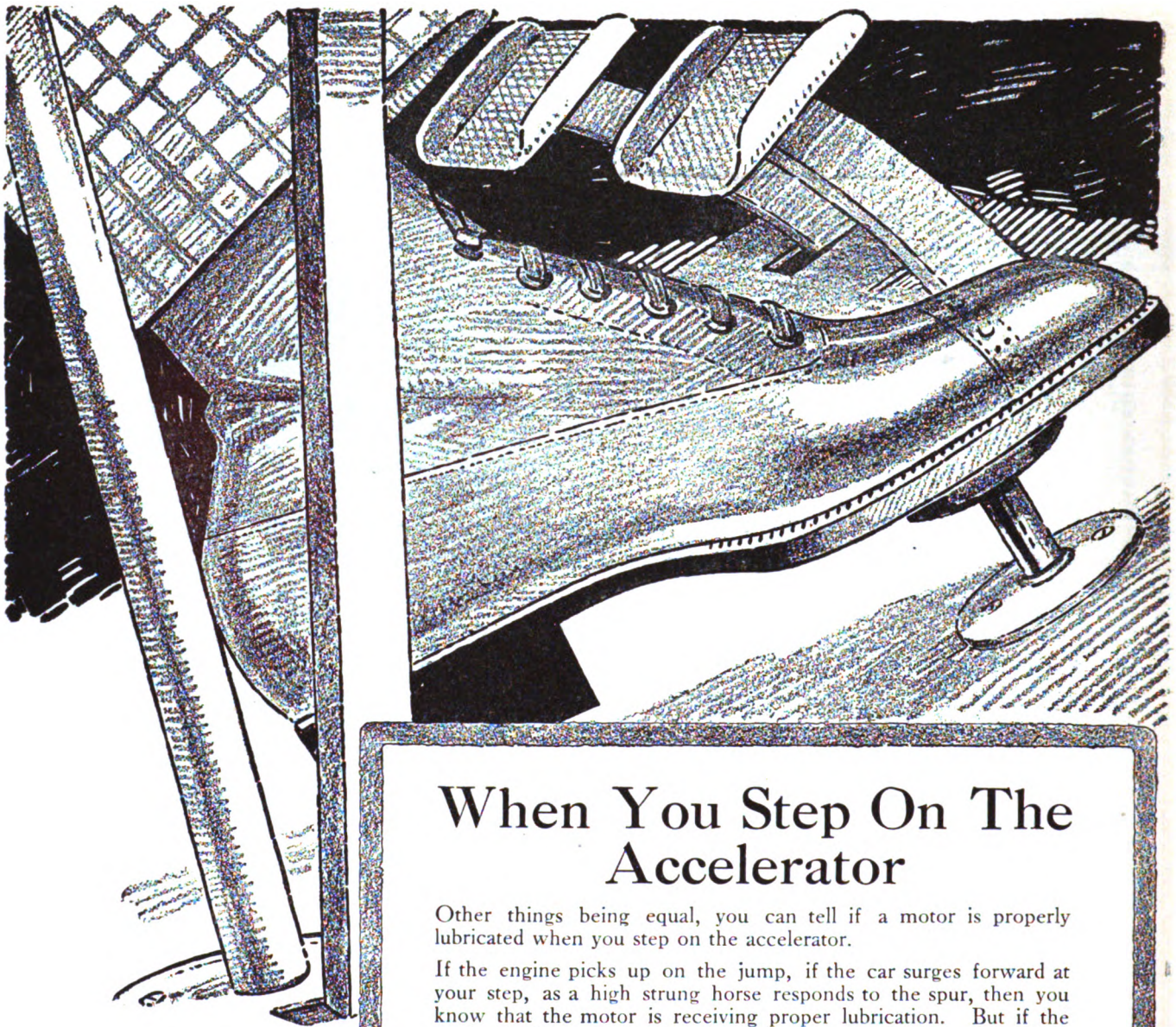
Sell Them Rear Bumpers —The Front Bumpers Will Sell Themselves

Typical Advertisement in Collier's



ARE YOU READY FOR HIM?

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When You Step On The Accelerator

Other things being equal, you can tell if a motor is properly lubricated when you step on the accelerator.

If the engine picks up on the jump, if the car surges forward at your step, as a high strung horse responds to the spur, then you know that the motor is receiving proper lubrication. But if the engine is slow, sluggish, you will know that the car is not lubricated properly.

The difference is caused by excessive friction, poor compression, and the presence of hard carbon in the combustion chamber and on the spark plugs.

TEXACO MOTOR OIL

prevents these evils. It reduces friction to a minimum because even after long use it retains its original *lubricating* qualities and provides a film of real oil between moving parts.

Many oils, when subjected to the high temperature within a motor, soon break down into a liquid of extremely low viscosity having little more lubricating ability than water.

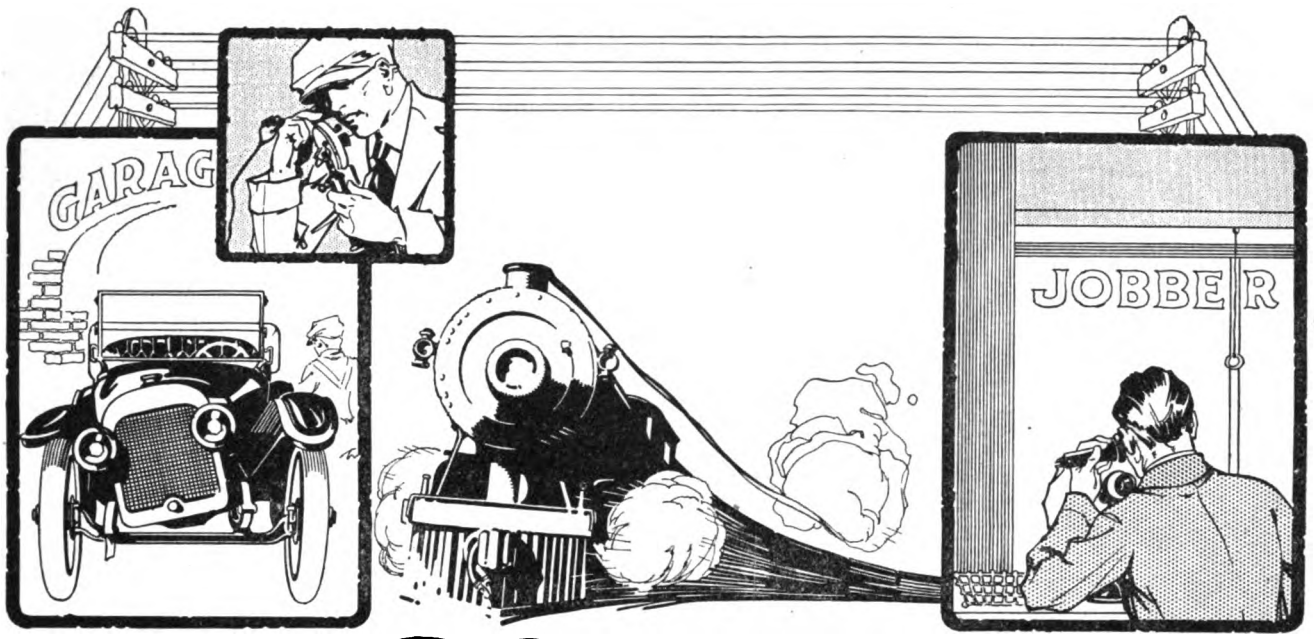
Texaco Motor Oil provides good compression because it prevents wear and gives a perfect seal between cylinder walls and pistons. Leakage of gasoline past the piston rings does not take place.

Furthermore Texaco Motor Oil, due to certain basic qualities, cannot deposit hard carbon in your motor. If carbon does form it will be a soft soot which cannot actually harm the motor and which may be easily *wiped off*, not burned or chipped away.

Use Texaco Motor Oil in your car. The safest way, the best way, to buy it is in one or five gallon cans. You can recognize the oil by its clear, clean color.

THE TEXAS COMPANY
New York Chicago Houston
DISTRIBUTING OFFICES IN MOST CITIES

Digitized by Google



RUSH!

When the hurry-up order comes—when

an excited customer rushes in and wants a new spring *at once*—when every minute counts—when you are placed on your mettle by a demand that seems almost out of reason— How will you meet it?

Will you simply hold up your hands and say "It can't be done?" Or will you

Get The Nearest Harvey Jobber On The Wire—

tell him your needs, and send the customer away pleased at the knowledge that his car will be on the road again, in better shape than ever before, within a few hours?

Make use of Harvey Service. It is designed to help you in emergencies.



There's a Harvey Jobber Near You

Drop us a card and we will send you his name and our catalog giving measurements, weights and sizes of over 900 different styles of Springs and other valuable information that you should have. Write today — you may need Harvey Help tomorrow.

Harvey Spring & Forging Co.

920 - 17th St. **Racine, Wis.**

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RACINE Country Road and Multi-Mile Cord TIRES

What These Names Mean to the Dealer

NOW the names mean *more customers—more sales—quicker sales*—and therefore, *better profits.* For Racine Country Road and Multi-Mile Cord tires are to be *nationally advertised!*

Many full pages in the Saturday Evening Post and The Country Gentleman. Big space in leading farm papers, etc.

Great Selling Campaign

A powerful selling message will be driven home in each advertisement. And each will be *your* advertisement. Each will direct the tire buyers of your locality to your store—if you make the most of this opportunity.

Immediate Deliveries

Racine Country Road and Multi-Mile Cord tire distributors are at all principal distributing points. Ready always to make immediately deliveries from the stock they carry on hand.

Write today for details of this opportunity.

Important: Every genuine Racine Country Road and Multi-Mile Cord tire must bear the name



RACINE RUBBER COMPANY
RACINE, WIS.

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List price for all sizes up to 3¾ in. diameter, $1.25 per ring.

With each complete set of rings a *Munger Piston Re-grooving Tool* and a *Munger Ring Insertion Tool* are supplied without extra charge.

Even a novice can install Munger "Always Tight" Piston Rings without breakage. Slip them over the Munger Ring Insertion Tool and they slide easily into the groove. These unique rings quickly conform to the shape of the cylinder and remain *always* gas- and oil-tight because with the Munger "Always Tight" Expansion Joint they retain their perfect fit until completely worn out.

Accessory Dealers and Garage Men!

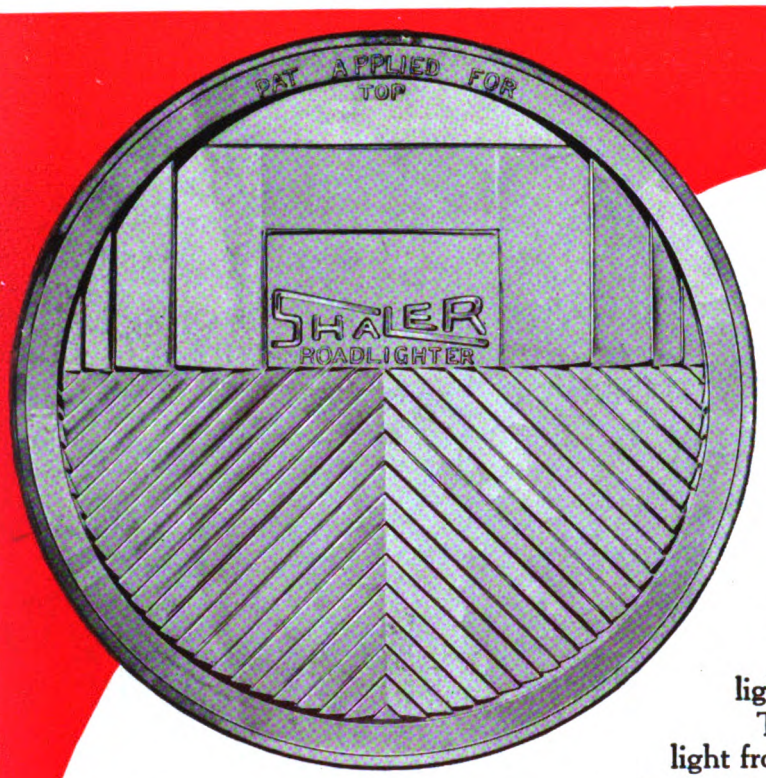
Any jobber will supply you with Munger "Always Tight" Piston Rings. Order them now.

SPLITDORF ELECTRICAL CO.
NEWARK, NEW JERSEY

Splitdorf Branch Houses and Service Stations:

Atlanta,	10-12 E. Harris St.	Newark,	278 Halsey St.
Boston,	68 Brookline Av.	New York,	7 West 61st St.
Chicago,	64 E. 14th St.	Philadelphia,	210 N. 13th St.
Dallas,	402 S. Ervay St.	Pittsburgh,	5943 Ellsworth Av.
Detroit,	1295 Woodward Av.	San Francisco,	1022 Geary St.
Kansas City,	1827 Grand Av.	Seattle,	1628 Broadway
Los Angeles,	1215 S. Hope St.	Toronto,	469 Yonge St.
Minneapolis,	816 Hennepin Av.		

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Front View of the SHALER Roadlighter

Makes Night Driving Safe

The SHALER Roadlighter is not a dimmer—it is a lighter—yet it conforms to all no-glare laws.

The country is flooded with lenses of all kinds and descriptions. You know that most of them are merely made to sell. They simply diffuse the light so as to get by the law.

That is all right for the fellow in the other car. But how about you?

It simply means that the efficiency of the lights on your car has been lessened.

The motoring public has been waiting for a headlight front that performs two distinct functions:

1.—To prevent a glare from the lights on your own car.

2.—To get a *strong* driving light—so strong that no matter how intense the glare of the approaching car you will not be blinded, but can see the edge of the road clearly and pass safely without slowing down.

SHALER

It Shoots the Light Far Ahead

The prisms take the light which with an ordinary lens is spread and wasted along the sides of the road too far ahead of the car to be of any practical value and bend it, concentrating it as extra light on the road-bed.

Result: At a distance of say 200 feet ahead of the car the light on the road is approximately twice the intensity of that from a bulb of the same candle power projected through a clear glass headlight.

Pierces the Glare of Approaching Headlights

The light is so intense that it will pierce the glare from an approaching car and give a clear view of the side of the road when passing. This exclusive feature of the SHALER Roadlighter is of prime importance.

The light which ordinarily shoots up into the air and is lost is bent down and toward both sides by the inner portion of the diagonal prisms so that the most concentrated part of the light is converted into an intense beam effect along the sides of the road, such as could only be obtained by using a spot-light on each side of the car. This highly intensified light counteracts the glare from an approaching headlight and enables one to keep a clear view of the edge of the road and pass in perfect safety without slowing down.

Rays Penetrate Fog and Dust

With any lens which permits the light to come above the level of the headlight, the rays strike the fog or dust particles and form a curtain of back-glare between the driver's eyes and the road. With the SHALER Roadlighter all the light is held down below the level of the headlight, doing away with the back-glare so that the driver is enabled to see ahead to the full length of the rays. Discoloring the glass and thereby dimming the light for driving under ordinary conditions is eliminated by the efficient design.

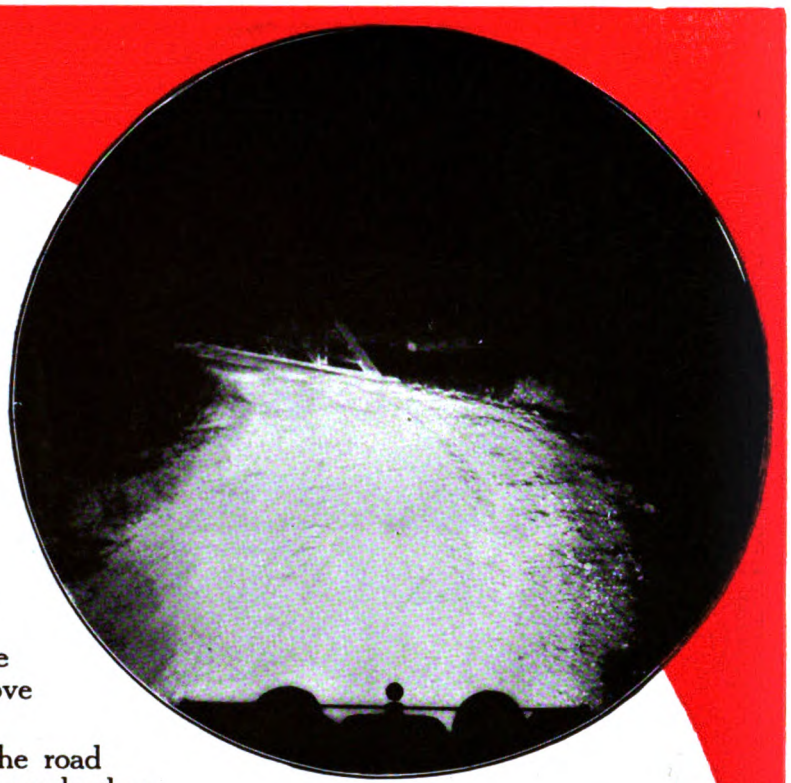
Tested—Proved—Guaranteed

The reports of our own experts—the official tests made in various cities and states—the photometer and illuminometer tests made by Mr. F. A. Vaughn, Chairman of the Headlight Committee of the Society of Illuminating Engineers, have demonstrated beyond the shadow of a doubt that the SHALER Roadlighter is infinitely superior in every way, and that it is the only lens that makes night driving as safe as by daylight. *Every SHALER Roadlighter is sold under a positive guarantee of absolute satisfaction.*

C. A. Shaler Co.
Waupun,

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Lights The Whole Road



Unretouched Midnight Photograph

You can now drive at night—with just as much safety—and just as fast as in daytime—without the delay and danger of slowing down and dimming your lights to allow another car to pass.

The new SHALER Roadlighter lights the entire road, from fence to fence, with a bright, white, evenly distributed light.

It has no glare—absolutely none—and the light beams are never more than 42 inches above the ground—at any distance from your car.

All of the light is evenly distributed on the road where you need it, giving brighter, safer night roads than you have ever seen before. It is approved by city, state and police officials everywhere and endorsed by leading accident insurance companies.

ROADLIGHTER

It Illuminates the Ditches

The outer portion of diagonal prisms bends some of the light down and toward both sides, giving a wide-spreading fan of light that illuminates the ditches clear to the fences.

It Is Easy to Keep Clean

The outer surface of the SHALER Roadlighter is perfectly smooth. There are no projections whatsoever on the outside to catch and hold snow, rain or dirt.

It Is Easy to Install

Since the outer surface of the SHALER Roadlighter is perfectly smooth, there are no projections against the rim of the headlight door to prevent proper seating. Therefore it is not necessary to know the diameter of the opening in the face of the lamp door.

Accurate Focusing Unnecessary

The prisms, which are at different angles with the smooth surface of the SHALER Roadlighter, deflect the rays so that there are no dark spots even if the bulb is not exactly focused.

It Is Legal Everywhere

The rays passing through the upper half of the lens are projected below the horizontal by the reflector itself and hence none of them are more than 42" above the surface of the road. The rays passing through the lower half of the lens are bent down below the horizontal by the diagonal prisms and hence are not projected more than 42" above the surface of the road—thus no light is wasted in glare and the SHALER Roadlighter complies with all no-glare ordinances.

Regular retail prices of the SHALER Roadlighter are $2.75 per pair for Ford size and smaller; $3.50 for larger sizes. Packed ten in a carton.

Limited Offer to Dealers Only

We want every automobile accessory dealer in the United States to try out a pair of SHALER Roadlighters on his own car—AT OUR EXPENSE.

Mail the coupon for full particulars regarding this big offer There is no obligation—don't put it off—clip and mail coupon *now*.

9404 Fourth St.
Wisconsin

Dealers' Offer Coupon

C. A. SHALER CO., 9404 Fourth St., Waupun, Wis.

Gentlemen: Send me full particulars about your offer to let dealers try out a pair of SHALER Roadlighters at your expense. This obligates me in no way.

Name .....

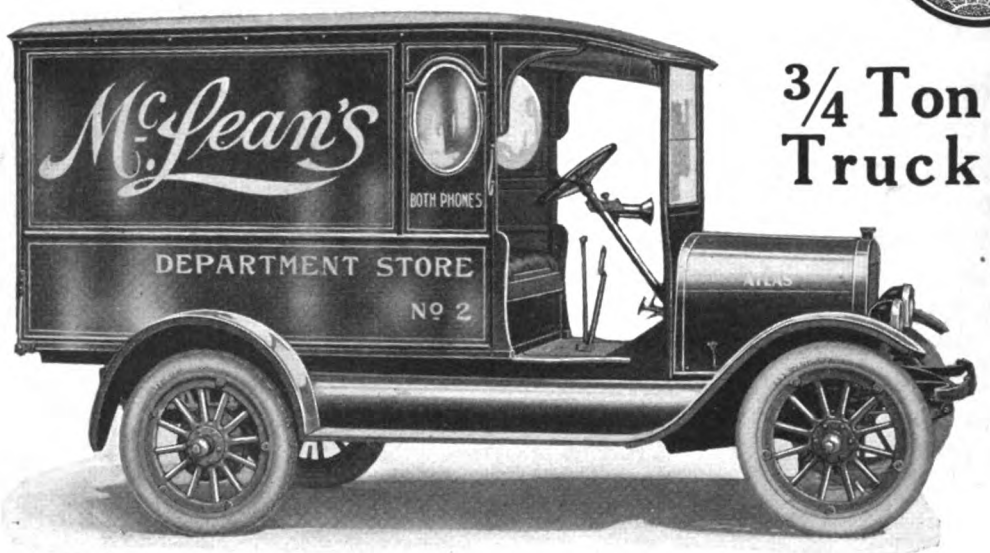
Address .....

City and State .....

My Jobber's Name Is .....

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COMMERCIAL ATLAS TRUCKS



COMMERCIAL ATLAS TRUCKS

3/4 Ton Truck

Only the Atlas Can Offer You the Choice of 33 Body Types

Consider the sales advantage of a line of bodies each designed and constructed to the smallest detail for one particular class of truck prospects.

This exclusive Atlas opportunity alone affords the Atlas dealer a long start over all competition in the light truck field.

Consider this wide selection of individual bodies in connection with a sturdy truck chassis that is built for truck service only—not a converted pleasure car chassis.

The mechanical make-up of the Atlas 3/4 ton truck speaks for itself in the specifications in this advertisement.

The hard-service Atlas motor with its big piston displacement and perfect cooling and lubrication; the 40 per cent overload rear axle and the heavy-duty, truck-designed frame, built for the utmost flexibility and strength, all help keep the service overhead of Atlas dealers down to a point where profits are only limited by the volume of sales.

Write arranging for a personal interview. ***"Built For Your Business"***

SPECIFICATIONS

Maximum Capacity, 1500 lbs.
Motor: Four cylinder 3¼ x 5 cast en bloc "L" type, detachable head, 3 point suspension. Cooling Thermo-Syphon. Lubrication, splash, constant level system plunger pump. Valves, 1⅝ in diameter.
Horse Power: 30 H. P. at 1600 R. P. M.
Ignition: Battery Ignition, Remy distributor.
Carburetor: Automatic float feed, dash adjustment. Hot air connection.
Radiator: Copper, honeycomb, 3-in. core. Ample capacity for cooling motor.
Transmission: Selective three speed forward and reverse, special heavy-duty truck type. Full roller bearing. Extra large face gears, 1¼ in. short shafts, designed to withstand hard service.
Clutch: Dry Plate Atlas Special Borg & Beck, integral with transmission. Bearings oiled through hollow shaft from transmission.
Drive: Hotchkiss Drive. Enclosed type dust-proof universal joints, extra heavy.
Control: Left hand drive, center gear shift lever, internal spark and throttle on steering wheel, bevel gears at bottom. Accelerator pedal attached to power plant.
Steering Gear: Double screw type Lavine Heavy-Duty. Adjustment for wear automatic, 17-in. wheel. Double throttle.
Frame: Pressed steel channel section 4x2x3-16 in., 3 in. at offset.
Front Axle: I-Beam Section, 6 in. knuckle, adjustable ball bearings in hubs.
Rear Axle: Full Floating. Helical Bevel Driving Gears, pressed steel housing, inspection plate at rear, Brown-Lipe differential, Bower Double Roller Bearings in rear wheels and right of differential. Gurney Thrust Bearings at left and front.
Gear Ratio: 4¾ : 1.
Brakes: Brakes external contracting, 12-in. dia., 2-in. face, 3-16 weight. Internal expanding, 12-in. dia., 2-in. face, 3-16 weight.
Springs: Semi-Elliptic Front 2 x 36 x 7 ply. Semi-Elliptic Rear 2 x 46 x 9 ply. Special high-grade, oil tempered double heat-treated with bushed eyes. Hardened bolts and grease cups, nuts with cotters.
Wheels: Wood, Artillery type, second growth hickory, 1¼-in spoke.
Rims: Clincher, quick demountable type, furnished with spare rim and wrench.
Tires: Lee 31 x 4 Standard. Non-Skid rear.
Tire Holder: Tire Holder bolted to running board with lock.
Wheelbase: 106 in. regular. 118 in. special.
Gas Tank: Capacity 10 gallons, built on chassis.
Equipment: Remy Electric Generator, Willard SJW4 No. 317 Starting and Lighting Battery. Electric Head and Tail Lights. Ignition, lighting and dimming switch plate, with ammeter.
Horn: Standard make hand-operating horn.
Windshield: Heavy double ventilating plate glass shield without stay braces.
Bumper: Spring type bumper.
Fenders: Complete set of four fenders crown pattern, rear fender extra long.
Running Boards: Running boards covered with Battleship Linoleum and edges bound.
Body: Any one of thirty-three styles, open six post panel, fore-door, Vestibule and Semi-Vestibule front.
Starter: Starter Optional. Motor equipped ready to install.

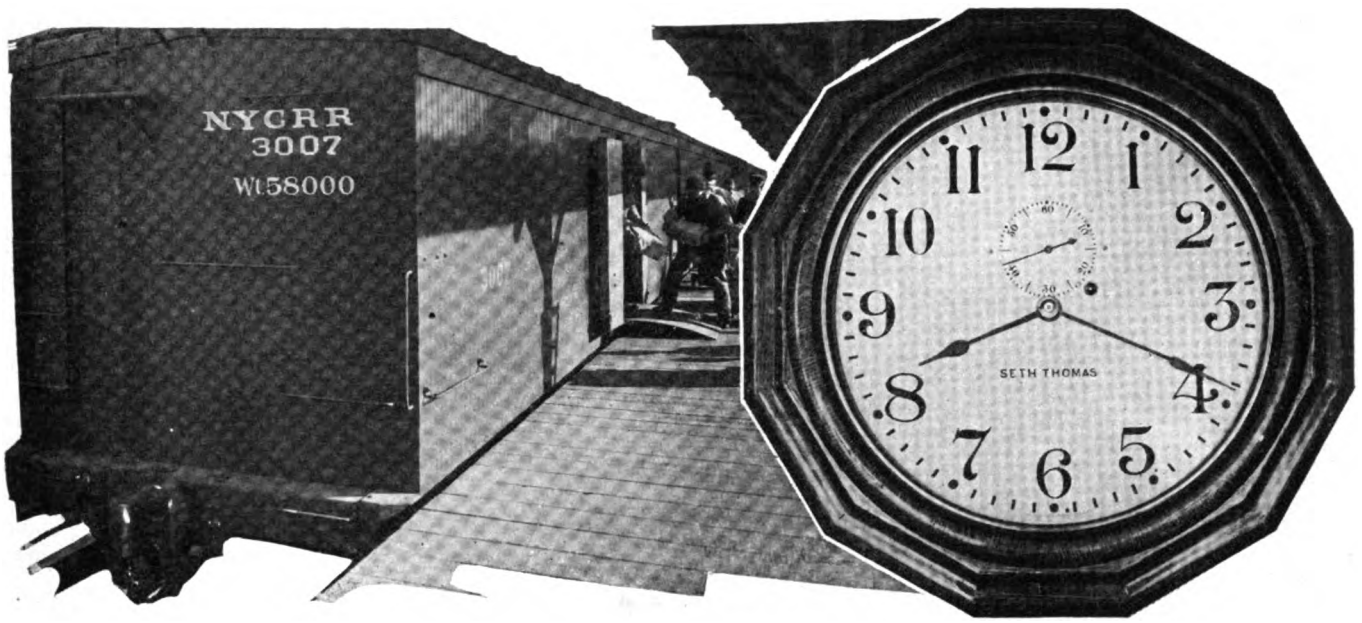
Specifications subject to change without notice.

Martin Truck & Body Corporation, York, Pa.

ATLAS

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18 Years of Leadership in Spark Plug Manufacture



Shipment in 24 Hours



Manufactured under A. R. Mosler's Patent No. 1,218,298, March 6, 1917. Other Patents Pending.

You don't have to wait for deliveries — Mosler Vesuvius Spark Plug shipments are prompt. Your order gets quick action. Every order shipped within 24 hours of its receipt.

This speed in delivery is all due to factory preparedness — we want your order. When it comes we are prepared to fill it.

We are not tied up by equipment contracts with car builders but have kept ourselves free so that we might serve the trade better and more quickly.

MOSLER

VESUVIUS

PLUG

Prompt shipments mean less money tied up in stock—quicker turnover —increased **profits.**

If you will use the Vesuvius Sales Helps you tie up your Vesuvius stock with the big Vesuvius advertising campaign. You can't help but increase your business.

A. R. MOSLER & CO. :: :: New York City

THE INDESTRUCTIBLE PLUG GUARANTEED TO OUTLAST THE MOTOR

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"A NECESSITY"

"We use the 'Red Book' constantly and we find it not only essential but necessary in our Buying Department."



Secretary
FRED CAMPBELL AUTO SUPPLY CO.
St. Louis, Mo.

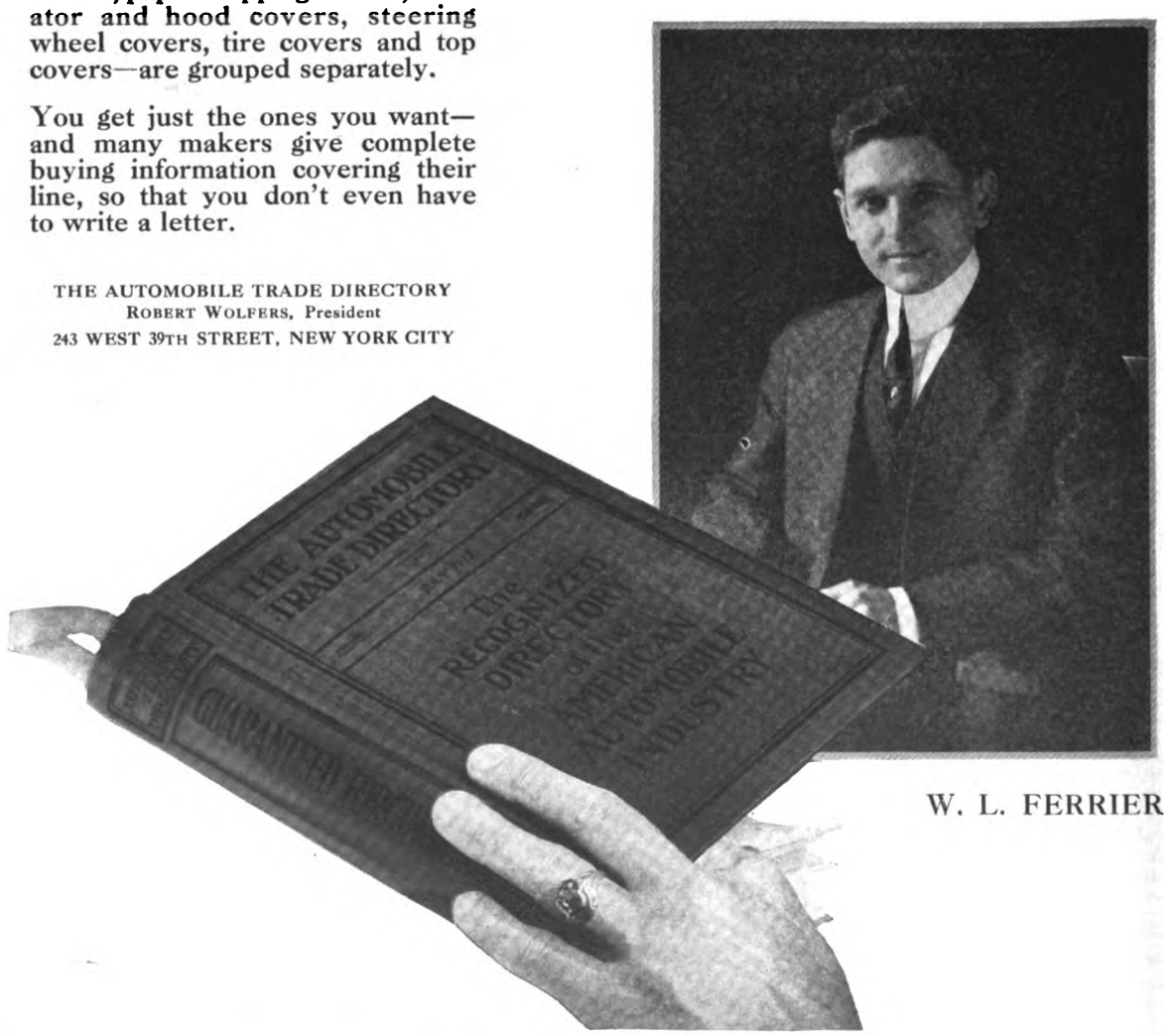
The "Red Book" is universally used in the trade because it gives accurate information—saves time.

For example, you are in the market for slip covers. Look under "Covers." You'll find a complete list of all makers of slip covers in one group.

Makers of other types of covers—automobile covers, lamp covers, leather magneto covers, oil hole covers, paper shipping covers, radiator and hood covers, steering wheel covers, tire covers and top covers—are grouped separately.

You get just the ones you want—and many makers give complete buying information covering their line, so that you don't even have to write a letter.

THE AUTOMOBILE TRADE DIRECTORY
ROBERT WOLFERS, President
243 WEST 39TH STREET, NEW YORK CITY



W. L. FERRIER

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POSITIVELY STOPS LEAKS

There's NOTHING so effective as Radiator Neverleak for keeping radiators leak proof. Tests prove it.

It's a LIQUID, not a meal or cement. It can not clog or impair the cooling system.

Simply pour it in the radiator and leave it there. No need to draw the water off. Works perfectly with alcohol in cold weather.

Guaranteed to Work or Money Back

Radiator Neverleak is absolutely different—a wonderful formula. Every dealer is backed up by our guarantee. **You take no chances.**

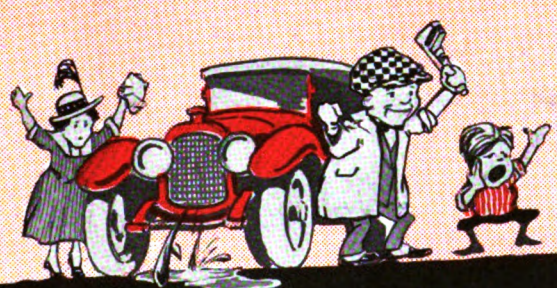
Retails in two sizes—50c and 75c a can. Dealers—Send for information about our **big profit** assortments.

Buffalo Specialty Company

Buffalo, N. Y., U. S. A.

Bridgeburg, Ont., Canada





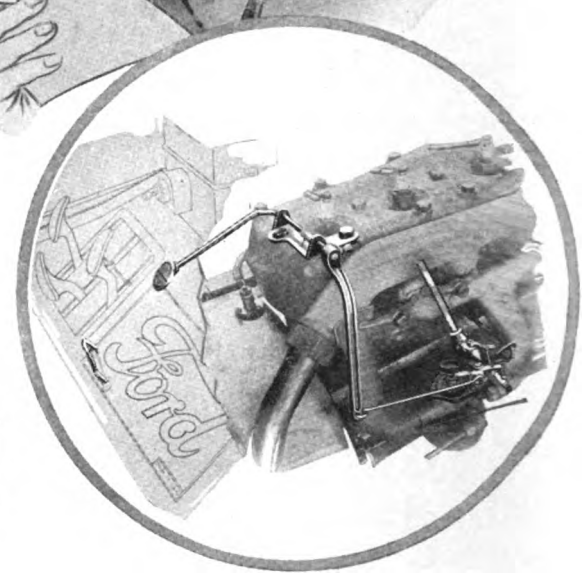
RADIATOR NEVERLEAK

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Which for you this Year?



WHY not do away once and for all with the *high cost* of *low mileage?* Cover the same ground—in better time— and slice a third off the gasoline bill.



The REMINGTON GASOLINE SYSTEM

For your FORD

PRICE, $7.50

saves gasoline, gives more power, provides a foot accelerator, insures perfect control and gives you that ease of operation which is one of the strongest features of the high priced car.

Every Ford owner knows that he can increase his mileage and improve the running conditions of his engine by continuously adjusting the needle valve, giving himself as rich a mixture as is necessary to start on and by turning the valve down after the engine is warmed up continue to make his mixture leaner as the speed increases. Carburetor troubles, however, are sure to follow this practice—which is distinctly advised against in the Ford Manual.

In running a car at ten miles or over with the Remington Gasoline System it is possible to utilize a mixture of one of gasoline to twelve of air, not only with immense economy of gas, but with greatly increased power. The Remington Gasoline System affords the only known method of diluting the over rich mixtures of the Ford Carburetors without the necessity of constant adjustment. It is a system devised and developed by automobile engineers of recognized ability—a system which is worthy the attention of every Ford owner.



It means a bigger upkeep saving than you have ever known—a better travelling record than you have ever had. Find out more about the Remington Gasoline System today. Your copy of an interesting folder is waiting—write for it now.

THE REMINGTON MANUFACTURING CO.

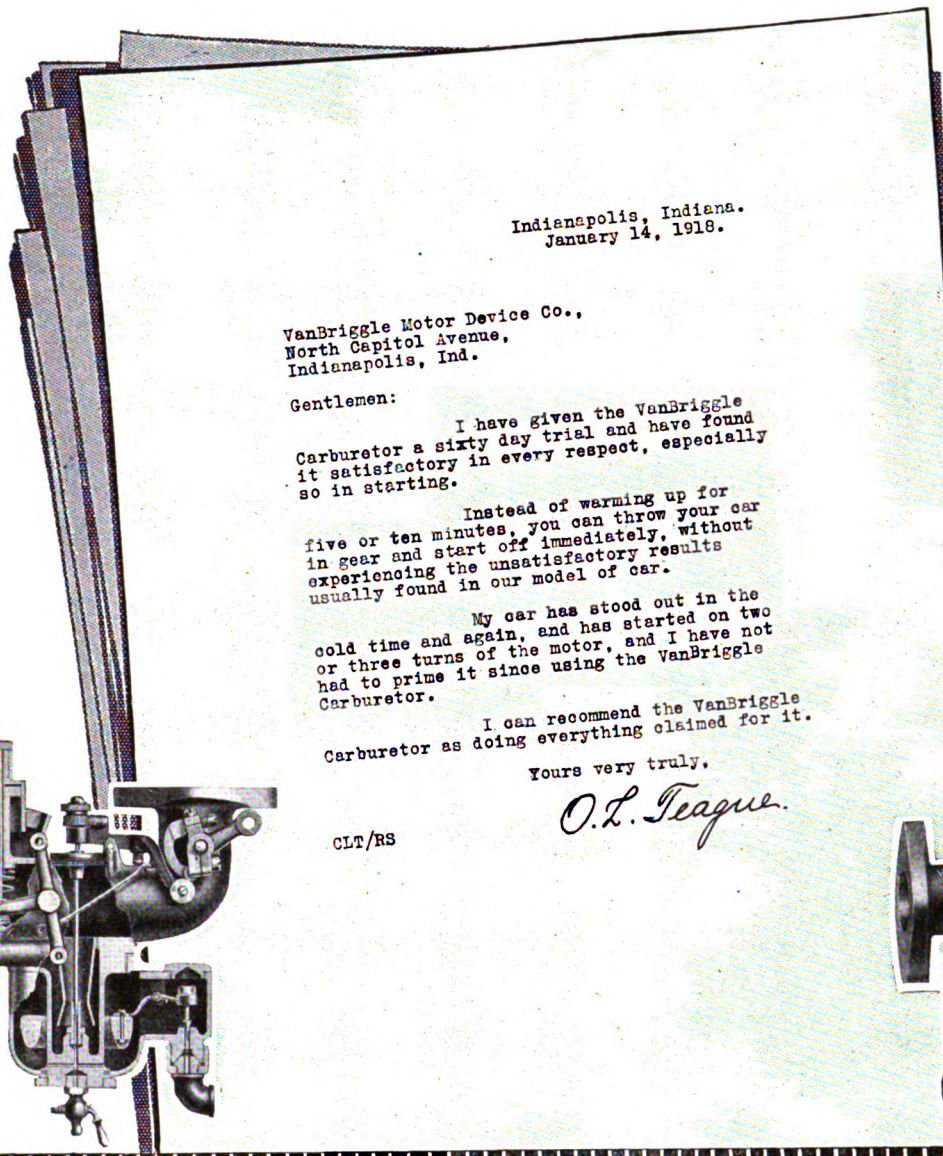
1142 Real Estate Trust Building

PHILADELPHIA

CHICAGO OFFICE 62 East Lake Street

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Never Primes It!



Indianapolis, Indiana.
January 14, 1918.

VanBriggle Motor Device Co.,
North Capitol Avenue,
Indianapolis, Ind.

Gentlemen:

I have given the VanBriggle Carburetor a sixty day trial and have found it satisfactory in every respect, especially so in starting.

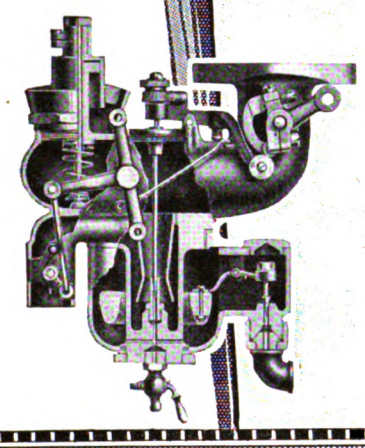
Instead of warming up for five or ten minutes, you can throw your car in gear and start off immediately, without experiencing the unsatisfactory results usually found in our model of car.

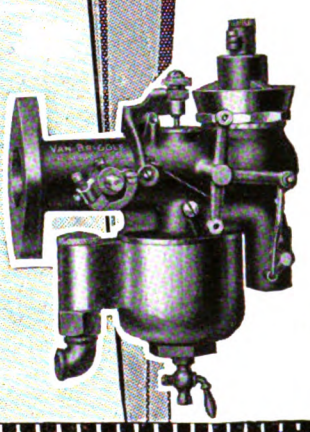
My car has stood out in the cold time and again, and has started on two or three turns of the motor, and I have not had to prime it since using the VanBriggle Carburetor.

I can recommend the VanBriggle Carburetor as doing everything claimed for it.

Yours very truly,
O. L. Teague.

CLT/RS





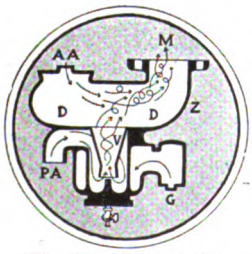
for Passenger Cars, Trucks, Tractors

VAN BRIGGLE CARBURETOR

One Principle for all Motors

Instant Starting! No priming—no spinning—no "warming up"—even in *coldest* weather! These, among the many other unusual Van Briggle features, are timely points which cause hundreds of users to write us letters like that of O. L. Teague's above. Illustrated descriptive booklet free on request. *Send for it.* ¶JOBBERS AND DEALERS: The Van Briggle is as easily handled as tires. Small stock meets any need. New opportunity for profit and service. Write for proposition.

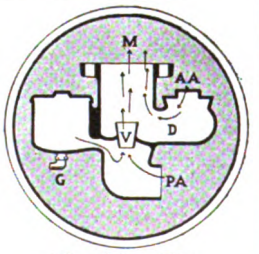
KEY TO DIAGRAMS: PRIMARY AIR (P.A.); AUXILIARY AIR (A.A.); GASOLINE (G); MANIFOLD (M.); MIXING CHAMBER (D.); VENTURI TUBE (V.); LOCATION OF MANIFOLD ON HORIZONTAL TYPE (Z.).



The Van Briggle Way

EXPLANATION OF DIAGRAMS

Because of the peculiar construction of the Van Briggle's primary air chambers, the primary air enters the venturi tube in a whirling, swirling movement, breaking even the poorest gasoline into the most minute particles. The primary mixture then enters the mixing chamber. The auxiliary air, traveling across to the manifold MUST PASS THROUGH THE PRIMARY MIXTURE. Two mixtures are thus assured in the Van Briggle Carburetor—each thorough and absolute. A thorough mixture and complete vaporization mean EVERYTHING to your motor. Compare the Van Briggle Way with The Other Way. There *is* a difference!



The Other Way

VAN BRIGGLE MOTOR DEVICE CO.
429 North Capitol Avenue, Indianapolis

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Demonstrating the "Stand-Up-Ability" of the

DETROIT
DETACHABLE
WEATHERPROOF
TOP

Los Angeles, Dec. 31—Arrived here this evening. Top like new. Its "Stand-up-ability" is wonderful. Templeton.

This wire was received by the Detroit Weatherproof Body Company from J. V. Templeton, two months after he had started on the first winter automobile tour in a regularly equipped motor car between Pontiac, or any point as far east, and the Pacific coast.



J. V. Templeton, of the Sales Department of the Detroit Weatherproof Body Co., starting on his 3000 mile cross-continent journey in light car equipped with a Detroit Weatherproof All-Season Top. Templeton is seen leaning out of the car, shaking hands with the mayor of Pontiac. The Company's Executive Building is in the background.

Templetons Lived In Car

During the 3000 mile trip the Detroit Weatherproof Top with which Templeton's light car was equipped was subjected to every conceivable test of the elements and hard usage.

The Templetons — Mrs. Templeton made the trip, too —practically lived in the car, which was equipped with a special cook stove and folding cots.

A 3000 Mile Test and Triumph

Over roads through which it was a crime to drive any car; across mountains; through the desert; in rain, snow, sleet and under the blazing sun of the American Sahara, Templeton jammed the car through —and at the end of 3000 miles of this kind of going the sturdy Detroit Weatherproof Top was "like new!"

Templeton calls it "stand-up-ability"—"wonderful stand-up-ability." But the durability and "stand-up-ability" of the Detroit Weatherproof Top isn't so wonderful to anyone who has visited the great plant in which this top is made and watched it through all the different operations of manufacture.

All D-W Tops Are Good

The best of materials, put together with the best of workmanship, and subjected to rigid tests in every department, under the searching eyes of inspectors, combine to make each Detroit Weatherproof Top the equal of the one under which the Templetons made the first winter tour between the East and the Pacific Coast.

The extreme care used in the making of each Detroit Weatherproof All-Season Top is one of the main reasons why this top leads its field in sales. And it leads by a distance that leaves no doubt as to its superior popularity.

Dealers

For information about our sales proposition, write to-day, giving your name and address.

For the Present We Manufacture Tops for the Following Cars Only

Ford Touring—$87.50; Overland Model 83 5-Passenger—$115.00; Chalmers 6-30 5-Passenger (including rain vision visor to be fitted to standard windshield)—$97.50; Chandler 1917, 1918 (including 3-piece built-in windshield)—$185.00; Buick D45 Light 6—$140.00; Hudson Super Six Touring (including 3-piece built-in windshield)—$190.00; Chevrolet Model Four-ninety 16-17-18 —$110.00; Maxwell Roadster—$130.00; Maxwell Touring—$145.00.

Detroit Weatherproof Body Co.

105 Saginaw Street Pontiac, Michigan

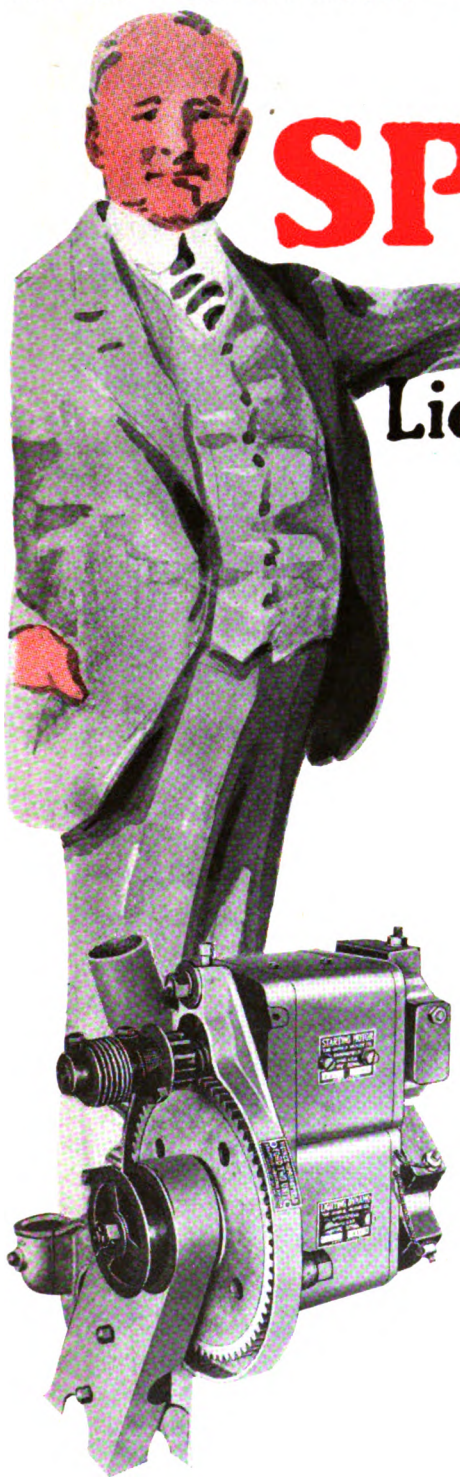
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"Leads in Sales"

because it leads in mechanism~

HEINZE SPRINGFIELD

Cranking & Lighting System for *Fords*



A patented mounting plate aids in securing rigidity and a patented chain adjustment insures quietness and prevents broken chains. Nothing is visible when the hood is closed, and there is no power drain on the motor.

HEINZE-SPRINGFIELD *leadership in sales* is proved by actual test and is directly due to its *superiority in mechanism.* You will find that Heinze-Springfield sales superiority is in proportion to its mechanical superiority —and it is very far ahead in both sales and mechanism.

The Heinze-Springfield System is a Two-Unit, Six Volt, Single Wire Cranking and Lighting System with Bendix Drive. The design is so simple, so practical, and fits so well into the Ford Engine construction that *any garage man can easily install it in four hours.*

More Ford owners are demanding the Heinze-Springfield System in preference to all other systems because of its *obvious* excellence;—because it is the only system built in the motor instead of "onto" the motor, becoming part of the Ford engine—as rigid and as sturdy as the car itself—and not interfering with engine repairs or valve grinding;—because the Heinze-Springfield System is the *only* cranking and lighting system for Fords selling for $85, complete with Ammeter, Dash Light, Tail Light, Dimmers and Lock;—because the Heinze-Springfield dash equipment is the most compact, the most complete and the highest quality equipment sold with *any* Ford cranking and lighting system.

Dealers: The Heinze-Springfield System sells easily, quickly, because of its evident superiority and because of the big demand. Think of it, every Ford owner who is without a Heinze-Springfield System is a prospect! We guarantee a liberal profit on each sale. Why not take advantage of this opportunity to add materially to your total profits by selling the Heinze-Springfield System? Write, or better, wire your name and address. We will do the rest.

The John O. Heinze Company

Springfield, Ohio, U. S. A.

For information, simply tear out and mail coupon

The John O. Heinze Co., Springfield, O.

Please send me Heinze-Springfield literature and dealer proposition.

*Name*_____

_____

*Address*_____

_____

_____

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SPECIFICATIONS

Wheel Base—118 inches.
Capacity—1500 pounds.
Loading Space—Seven feet back of driver's seat.
Motor—Four-Cylinder, Mono-Bloc, "L" Head, size 3¼" Bore by 5" Stroke. 29 H.P. Three point suspension.
Motor Oiling—Self contained, positive feed type, operated by Plunger Pump. Oil sight indicator on Motor.
Valves—Valve Mechanism entirely enclosed and automatically lubricated. Situated on right-hand side of motor.
Carburetor—Zenith.
Ignition—Connecticut Ignition with Auto Light Starting and Lighting System with Willard Battery.
Cooling System—Radiator, Zig-Zag Tube. Water circulation. Thermo-Syphon. Fan 15" diameter, mounted on Annular Ball Bearings.
Brakes—Both sets of Brakes are on Rear Hubs. The Service Brakes are External Contracting; Emergency Brakes are Internal Expanding. They are 14" diameter, 2" face.
Wheels—Front and Rear Wheels are Artillery Type, each having twelve 1⅝" Round Wood Spokes.
Tires—Pneumatics 32 x 4".
Rims—Demountable Rims with one extra rim.
Chassis Equipment—Includes full set of tools, extra rim, head and tail light, electric horn, front fenders, running-board, wind-shield and gasoline tank.
Weight—2600 pounds complete.
Transmission—Selective Sliding Gear with Three Speeds Forward and one Reverse. Unit Power Plant Type bolted direct to engine.
Clutch—Dry plate, Raybestos on steel. All adjustments automatic.
Drive—Propeller Shaft with two Universal Joints from Transmission to Rear Axle.
Front Axle—Drop Forged, I-Beam Section, Heavy Spindles and Large Ball Bearings in Hubs.
Rear Axle—Three-quarter Floating. Heavy Duty Roller Bearings; differential gear ratio 6 to 1.
Steering Gear—Worm and Gear Type. Hand Wheel 18" Diameter. Springs in connection link to front axle for absorbing shocks.
Frame—Pressed Steel 4" deep.
Springs—Front Springs are Semi-Elliptic, 37" long and 2" wide. Rear Springs are Semi-Elliptic, 50" long and 2¼" wide. All springs are made from a special grade of electric furnace steel. All spring bolts hardened and ground and fitted with grease cups.

Three Quarter Ton **COLLIER TRUCKS** **All Truck Units**

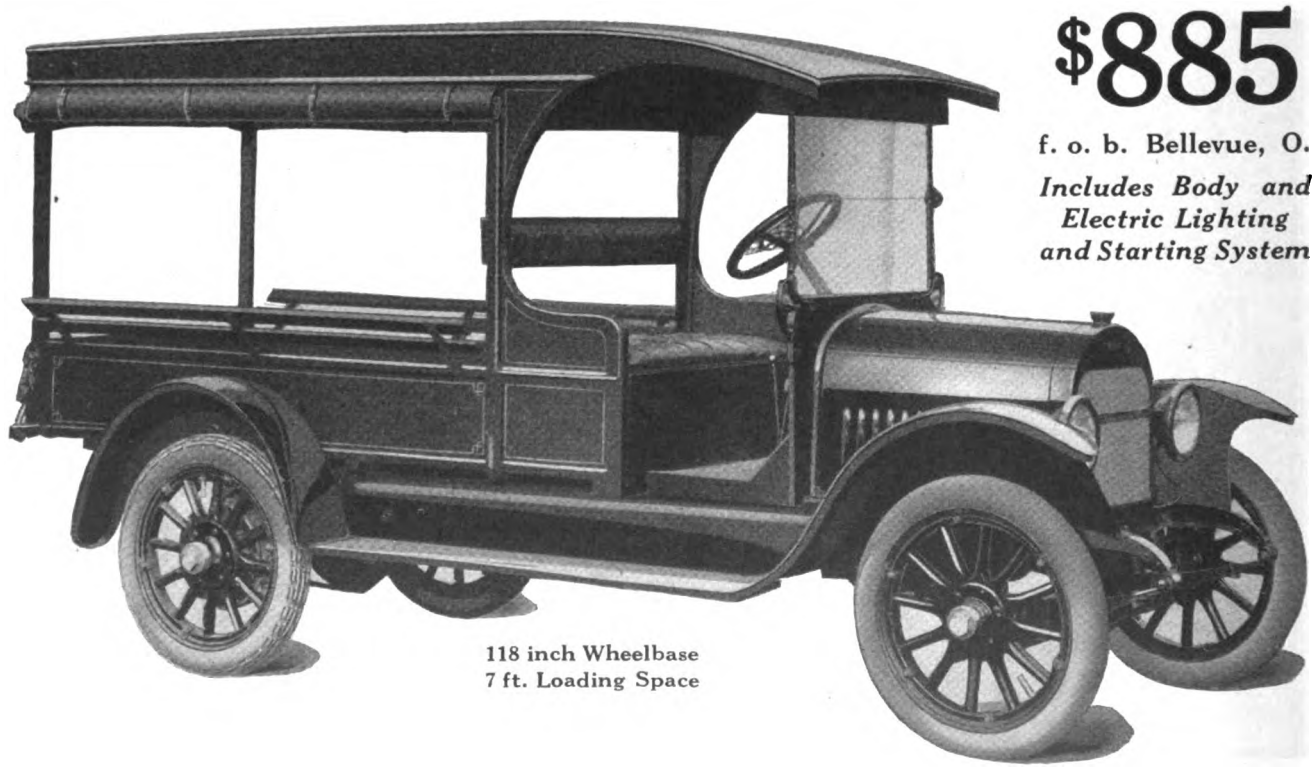
The Truck That Means Business

It means business and profits for the dealer because it is the biggest and best value for the buyer. Compare the *wheel base, motor size, axle, frame, starting and lighting system*, and other specifications and equipment, and you will see there is nothing so big, complete and high grade selling for $885.00.

DEALERS — An unusually attractive proposition is open to a few live dealers

Send for Catalogue

The Collier Motor Truck Co.
Bellevue, Ohio



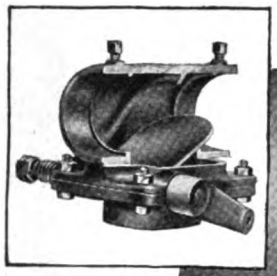
118 inch Wheelbase
7 ft. Loading Space

$885

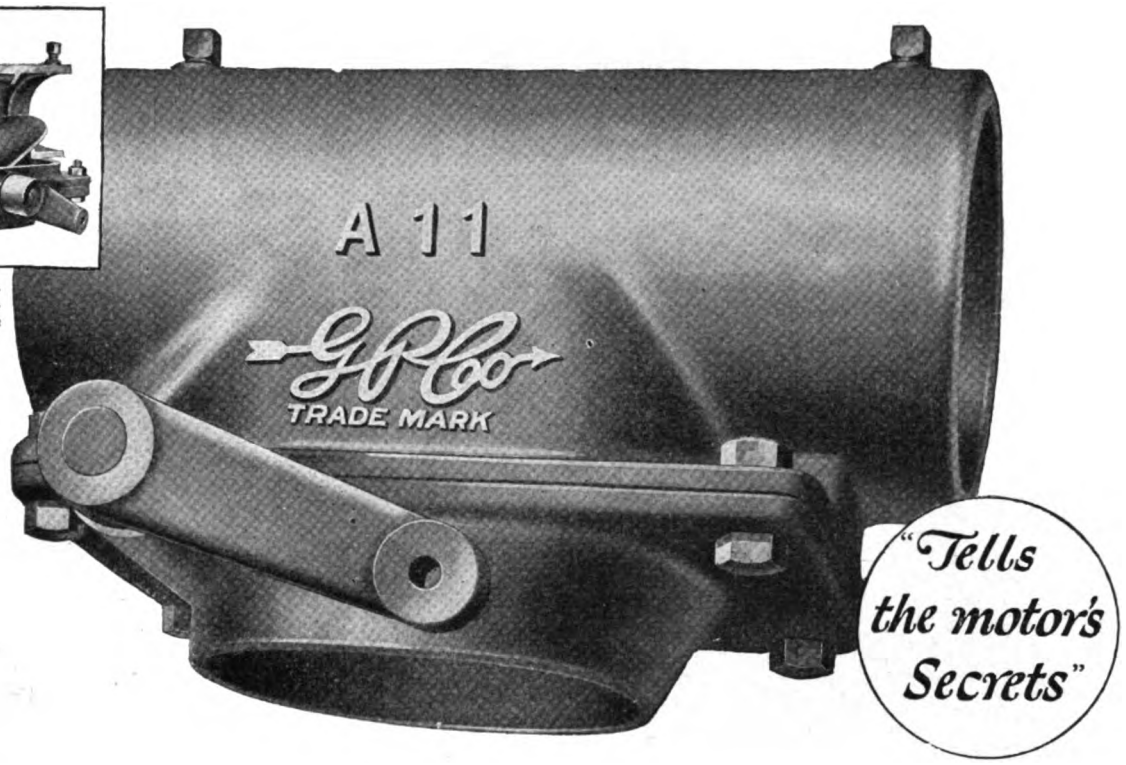
f. o. b. Bellevue, O.

Includes Body and Electric Lighting and Starting System

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Sectional view showing patented gas-tight tongue-valve open



"Tells the motor's Secrets"

Locate your little power leaks

Do you really know what your motor is doing? Can you tell the minute a cylinder is laying down on the job? Or do you wait until it is skipping badly?

The G-P Muffler Cut-Out shows up clearly just what your engine is doing. It enables you to save power, and power is costly. It helps to keep your engine running sweetly, and adds a new pleasure to driving. It shows up the little losses that take the edge off power.

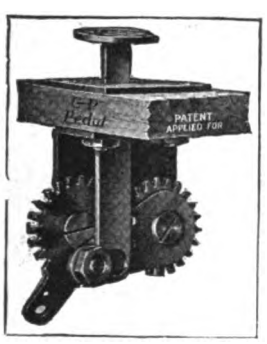
Note that it is made simple and strong. The G-P Muffler Cut-Out opens at an angle that permits the freest escape of gas. There is no back-pressure.

Carbon will not accumulate. Made in two parts to be readily opened and inspected. Gives complete relief to motor. It will tell you more about your engine in a minute than you can learn from a month of ordinary driving.

The G-P Muffler Cut-Out

and

G-P PEDAL



The G-P Pedal is made entirely of steel, and is strong enough to operate any cut-out spring. The geared compound leverage makes it easy to operate.

Compounding of leverage and geared parts allows installation in minimum space. Its installation requires but one small hole drilled in floor board. The locking device is on the bottom plate, so the pedal can be fastened to a steel or wood floor board of any thickness without altering its throw.

By releasing one screw the G-P Pedal can be changed to lift or pull in any direction. Operates any cut-out easily.



Winter Business—Cold Weather Made Profitable

Sales Department

EDWARD A. CASSIDY CO., Inc.,

Madison Avenue at 40th Street, New York City

Manufacturers: The G. Piel Co., Inc., Long Island City, N. Y.

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Back Your Good Workmanship With Good Brake Lining!!

Protect the lives of your customers—protect your own reputation—get the big end of the renewal business in your territory coming to you—by using

GARCO BRAKE LINING

GARCO is dependable. Our pledge of highest quality—our guarantee of absolute satisfaction—stands squarely back of every foot. GARCO dealers easily win the reputation of selling the best accessories in every line.

Solidly woven from high-grade, long-fibre asbestos, GARCO holds with the grip of a giant down till the last shred is gone.

GARCO will not heat or burn. Oil, water, grease or dirt on the brake drums do not affect it. The chemical solution with which it is impregnated gives it unequalled gripping power.

Your jobber will gladly tell you more about GARCO—about the full line of selling helps supplied free of all charge to every GARCO Dealer.

GARCO BRAKE LINING is only one of our complete line of automobile asbestos specialties. For big profits and big repeat business, order GARCO Transmission Band Lining for Fords Today.

GENERAL ASBESTOS & RUBBER CO., MAIN OFFICES and FACTORIES **Charleston, S. C.**

Branches and Complete Stock: 58 Warren Street, New York 311 Water Street, Pittsburgh
106 West Lake Street, Chicago

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The SIOUX Valve Grinder

Makes Short Work of Valve Grinding

Ball bearing construction and reciprocating action make the Sioux the fastest and easiest running valve grinder on the market. A continuous movement of the handle in one direction gives the "back and forth" motion, which is absolutely necessary for perfect valve grinding. The hand grip is set close to the crank center. This does away with all side strain.



Get One for YOUR Tool Kit

Every mechanic in every town should have one. You are wasting your time if you are not using the most efficient tools you can buy. Five interchangeable driving points—will fit any valve. Perfect balance and perfect stroke. Material and workmanship of the best. Will last a lifetime. Investigate today. Price complete, $6.00. Liberal discount to dealers.

Sold by all live jobbers

Manufactured by ALBERTSON & CO., Sioux City, Iowa



⅞ in. Regular for Maxwells AC Titan

Maxwell Owners

Does your motor always hit on four?

Do not blame your carburetor, or your ignition system, or your valves if your motor does not perform as it did at first, *but look to your spark plugs.*

A set of *AC Titan* plugs will make your car run more smoothly than it ever did because it delivers the *entire* spark instead of losing most of it through the insulation.

AC SPARK PLUGS

The Standard Spark Plug of America

Champion Ignition Company

Sole Manufacturers Flint, Michigan

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TRADE ACCEPTANCE

What It Is—How It Works

Its advantages as applied to jobber and dealer.

It is of vital interest to the trade—jobbers, dealers and manufacturers—that a carefully written and easily understood plan of the Trade Acceptance be presented for the consideration of all concerned.

In recent issues Motor World has gone into the subject at length—full details, with illustrations, examples, etc.

All this valuable information is now available in booklet form. If you are a dealer, a jobber, or a jobber salesman, *send at once for a free copy.* It tells you how to conduct your business in a new way—in a better way—in a safer way. It teaches you how to *get the cash.*

Write for a copy at once. Edition is limited.

ADDRESS

MOTOR WORLD

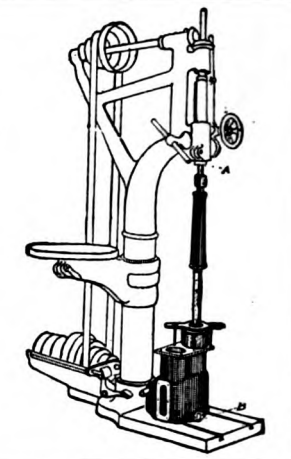
239 West 39th Street New York City

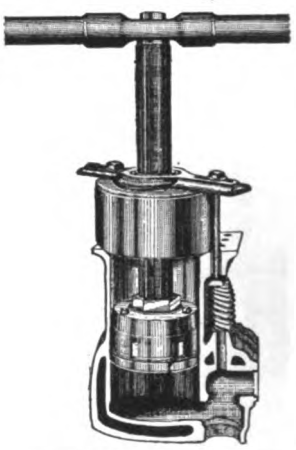
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STORM & O'HAIR CYLINDER REBORING MACHINES

Will Make YOU BIG MONEY







Present War Conditions Make Old Motors Valuable.

They all need reboring and rebuilding sooner or later. Hundreds of these are in your locality and need your attention.

Equip to do this work and it will come to you. Get in the game while it is highly profitable.

Don't deliberately send this work, which is rightly yours, out to others; do it yourself and **put the profits in your own pocket.**

STORM & O'HAIR CYLINDER REBORING MACHINES.

Are practical and a highly efficient equipment with which any repair shop can handle this profitable work.

No shop, large or small, complete without one.

It will save you time and money; keep your shop busy and make extra profit for you.

Make second-hand cars valuable. Don't handle them at a loss. Make a real profit.

Our Machines Cover All Requirements.

Hundreds are in daily use in all parts of the United States and foreign countries.

THE STORM REBORING MACHINE.

Rebores all types of motors, automobiles, trucks, tractors, motorcycle and stationary engines of all sizes now in common use.

THE STORM & O'HAIR MACHINE FOR FORDS.

The most popular and successful Reboring Machine for Fords now on the market. Put out especially for Ford repair shops but will rebore other 3¾" detachable head motors and being adjustable can be made suitable for other work should occasion require by the addition of extra parts.

Our Machines will increase the popularity and prestige of your shop.

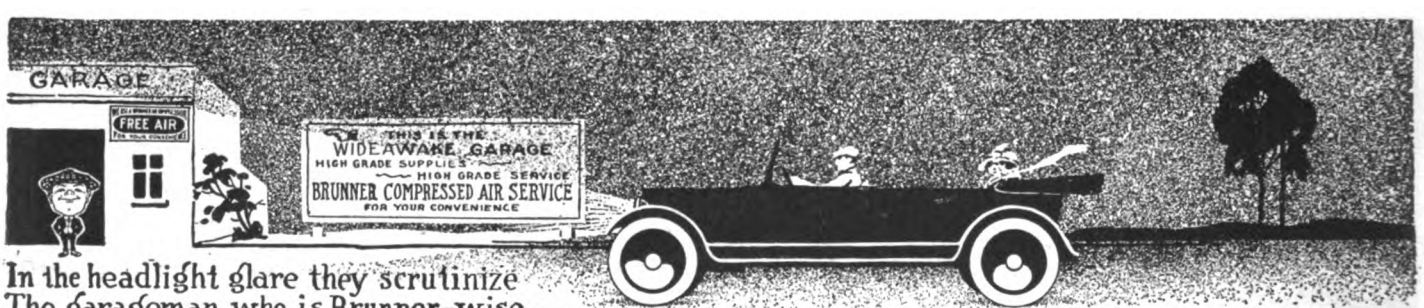
Equipped for operating by hand but can be furnished for operating by drill press, as shown.

For Sale by Leading Jobbers.

We furnish pistons for all makes of motors.
Write today for literature and prices.

STORM MANUFACTURING CO.

426-29 W STREET THOMPSON, IOWA



In the headlight glare they scrutinize
The garageman who is Brunner-wise —
On the Brunner sign they rest their eyes
And stop for air and – some supplies.

YES, BRUNNER SERVICE SATISFIES



Mr. Garagemen, is your compressed air service a dependable efficient service such as the red-blooded motorist who drives his car all winter demands?

This is a pertinent question just now, Mr. Garageman, because the majority of these red-blooded winter motorists are Brunnerwise motorists who prefer Brunner Service, and a Brunner Air Compressor in your garage this winter would secure their trade.

INVESTIGATE THE BRUNNER AIR COMPRESSOR

If you do not find the Brunner Line in your jobbers' catalogue we will be glad to send you the name of the Brunner Jobber covering your territory and one of our new No. 15 Catalogs.





BRUNNER MANUFACTURING COMPANY

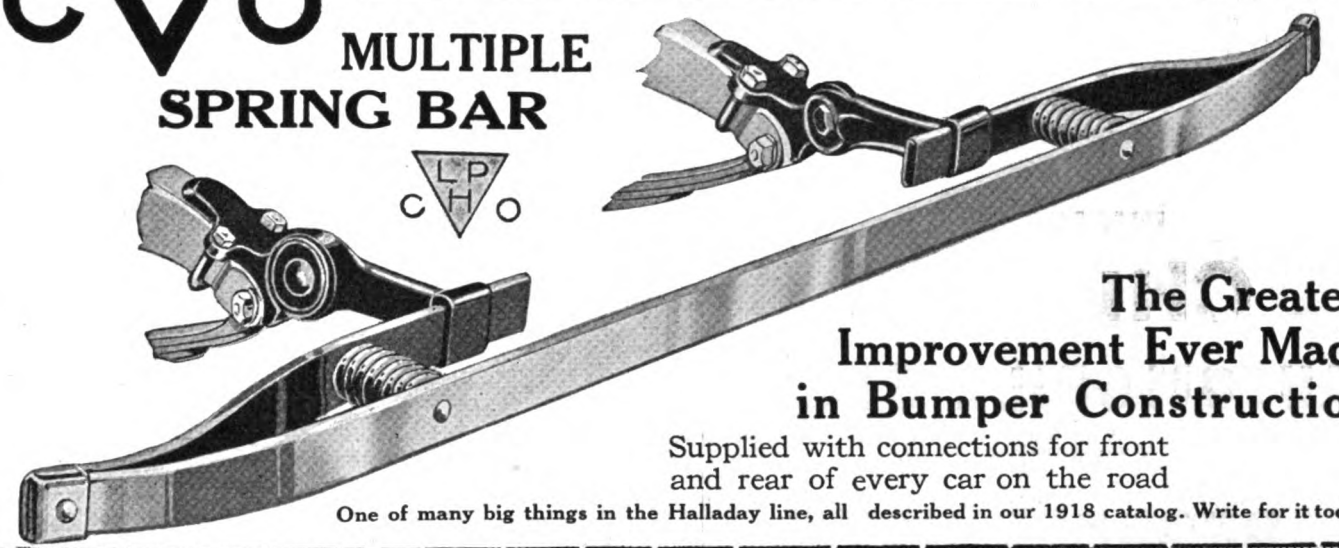
Main Office and Plant
UTICA, N. Y.

Cincinnati Branch
CINCINNATI, OHIO

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HALLADAY BUMPERS

MULTIPLE SPRING BAR



The Greatest Improvement Ever Made in Bumper Construction

Supplied with connections for front and rear of every car on the road

One of many big things in the Halladay line, all described in our 1918 catalog. Write for it today

L.P. HALLADAY Company.

DISTRIBUTORS:

ASCH & CO., 16-24 West 61st Street, New York City.
E. L. THOMPSON CO., 817 Boylston Street, Boston, Mass.
GRAY-HEATH CO., 1440 Michigan Avenue, Chicago, Ill.
SANFORD BROTHERS, Chattanooga, Tenn., Southern Distributors.
HUGHSON & MERTON, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors

Profitable Motor Trucks for Dealer and Owner



WE offer the 1918 line of International Motor Trucks as a most profitable dealer opportunity. Your biggest selling year is just ahead and these are the trucks with the steadiest popular and growing demand.

Concerns which make careful economy tests as a matter of good business, and which buy economical transportation, regardless of price, are standardizing on Internationals. One such concern has in service over 600 International Motor Trucks and is adding to this fleet regularly.

In every business, from truck gardening to manufacturing, wherever you find an International Motor Truck, you will find an owner who will bring out some phase of the "built-to-last" quality. Some marvel at the economy of the International engine; others at the efficiency of the International axle. Whatever the owner's story may be, proof is provided over and over again that International Motor Trucks are built with exacting care by an organization that has gained a world-wide reputation for the service it gives to its customers.

International Motor Trucks meet the needs of any and every firm with transportation problems to solve, in 1500, 2000, 3000 and 4000-pound capacity sizes, at prices ranging from $1450 to $2550 for the chassis (f.o.b. factory), with suitable bodies for every business. You know International standards and reputation—but have you seen the new 2-ton Model G?

The time is ripe for easy, profitable, thoroughly satisfactory selling. Your territory may still be open. If it is, get an International contract. Write today for full information.

INTERNATIONAL HARVESTER COMPANY OF AMERICA

(INCORPORATED)

88 HARVESTER BUILDING CHICAGO, U. S. A.

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DAYTON WIRE WHEELS

Will be Exhibited

DURING THE

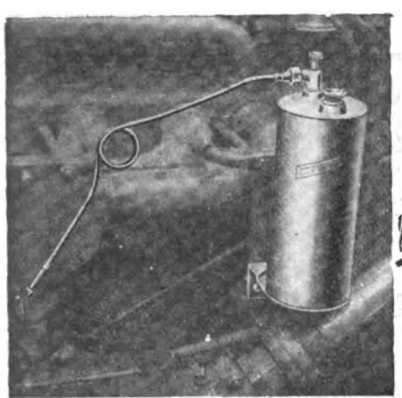
CHICAGO AUTOMOBILE SHOW

AT THE

CONGRESS HOTEL

With

Jessop & Thompson



No Carbon!

Show Them How—

It's Profitable

When carbon comes it brings a long train of mischief with it. And then the motorist's troubles begin. Yet it's easily and *absolutely* prevented with a

Whitney Gas Humidifier

Of all carbon removers, this is the sanest in principle, simplest in construction and lowest in price. It keeps the motor flexible, increases power, and reduces fuel consumption—and old carbon can't *stay* in, nor new carbon *get* in! It has valuable features found in no other device. Attached in a few moments by anyone.

The Right Price

That all motorists may have this trouble preventer and fuel economizer, the Whitney Gas Humidifier is priced attractively low. For 4-cylinder motors, it is $7.50. For 6-cylinder motors, it is $9.50. Anyone can afford it.

A Fast Seller

Get the facts about a Whitney dealership. Here is a quick selling product that every motorist wants. There's a generous profit in it for you, and plenty of cooperation from us. Write today for discounts and full particulars.

The R. S. Whitney Mfg. Co.

74 Nichols Street Lewiston, Me.

YES

It is quite a question just where to put your finger on the Machine Shop that can handle the job—*quickly*.

BUT

our CONTRACT WORK DEPARTMENT will give the answer.

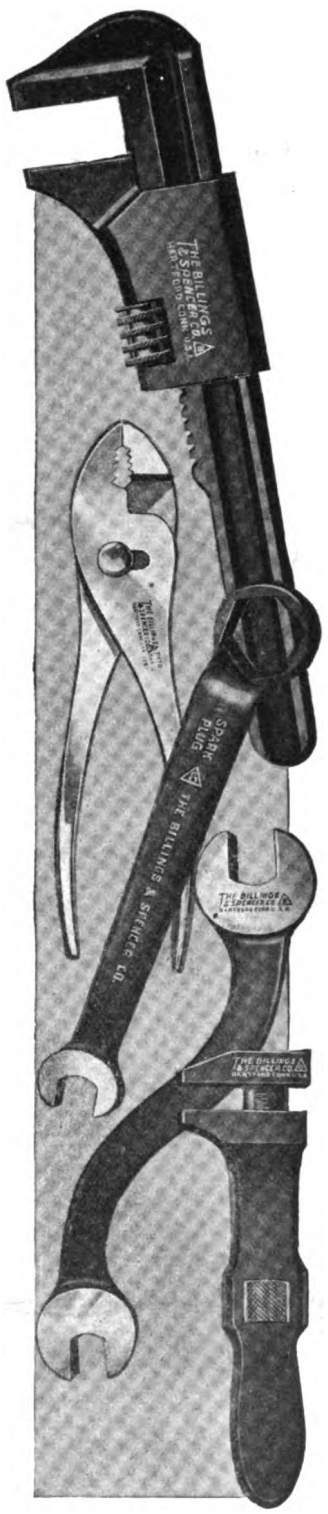
Refer to page 390 this week's Number.

Contract Work Dept.
MOTOR WORLD

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TRADE MARK

Tools It's a Pleasure to Work With



clean cut, well designed, dependable tools; tools that give a man a desire to make a good job of it; tools worthy of the most experienced machinist; tools that are durable, convenient and susceptible of fine, accurate adjustment; such are the world famous, universally used triangle trademarked tools.

You cannot offer your customers better tools than these, and certainly not tools that they are more ready and willing to buy.

You know and they know, as does every one that has had any experience with tools that those bearing the triangle trademark stand for the best in workmanship, material and design—tools of the highest character, backed by a service record of more than fifty years.

Keep them in stock. Write for new catalog —34th Edition.

THE BILLINGS & SPENCER CO.
HARTFORD, CONN. U.S.A.

DAYTON
QUICK DETACHABLE
WIRE WHEELS
MADE UNDER LICENSE

For Ford and Chevrolet Cars

Quick Change and Economy

Dayton Wire Wheels appeal to the conservative owner because of the wonderful resiliency which gives 25% more tire mileage and lengthens the life of the car proportionately. The quick change feature of "Daytons" represents a definite saving of time to the busy man, as well as a matter of comfort when a tire change becomes necessary in zero weather.

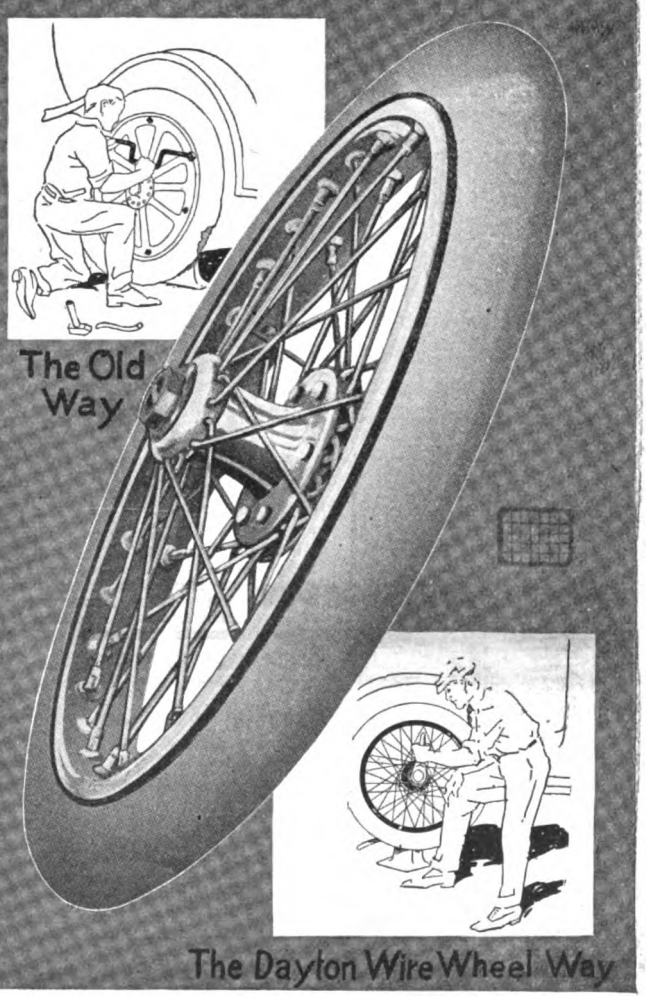
To change a tire the complete wheel is changed so that it is merely necessary to unscrew and replace the hub cap. The spare wheel is carried with the tire inflated, ready for instant mounting. Furnished in any desired color. "Daytons" add the last touch of elegance to the Sedan and Coupelet for winter use.

DEALERS AND JOBBERS

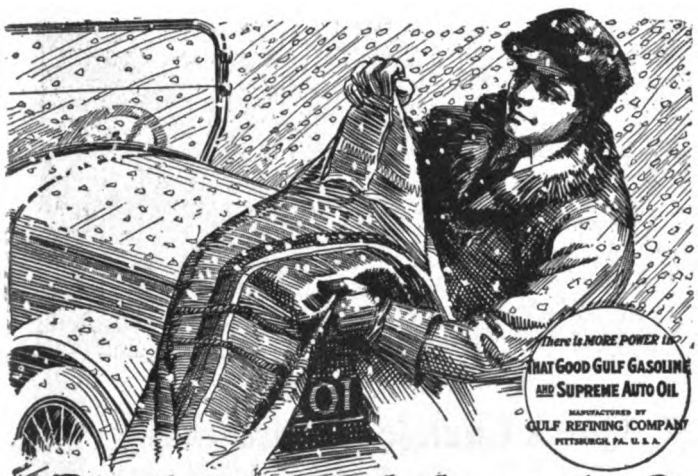
Dayton Wire Wheels insure more winter sales, more profits and more satisfied customers. Order to-day.

Deliveries Now!

THE DAYTON WIRE WHEEL CO.
826 Miami Road, DAYTON, OHIO



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Blankets won't help much if—

the oil you are using does not flow freely at Zero.

SUPREME AUTO OIL flows freely at Zero.

STARTS WITH THE ENGINE

This is most important during the Winter months. You should know whether the oil you are using "flows freely at Zero." All oils do not possess this feature—notably the paraffine-base oils, which thicken up under cold and often cause great damage to the motor.

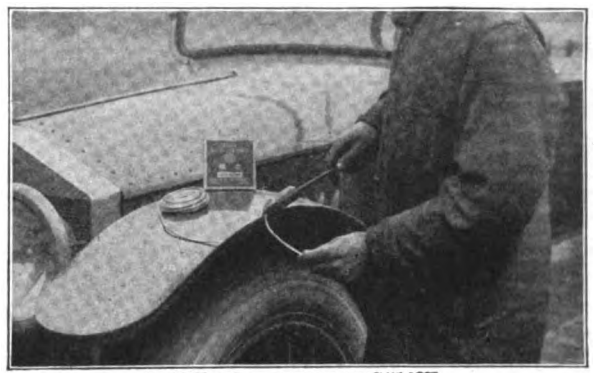
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GULF REFINING COMPANY

The Largest Independent Refining Company in the World

General Sales Offices: Pittsburgh, Pa.

District Sales Offices: New York Philadelphia Boston Atlanta Tampa New Orleans Houston



Kester Crystal-Core Wire Solder

is the most practical solder for automobile repair work. The solder is a hollow wire filled with an acid flux, which flows as solder is used. Cheaper to use than solid wire or bar solder, as it eliminates preparing, hunting or applying the flux.



Cleaner, Neater, Quicker

For spark plug and battery terminals, electric light connections, cracked fenders, gasoline pipe and tank joints, radiator leaks, speedometer flexible shaft, and the general garage uses.

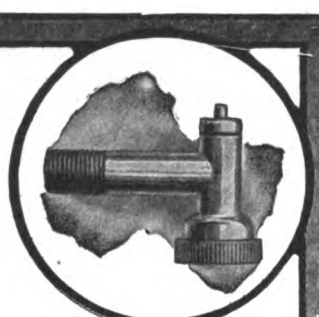
Sold in one pound coils in cartons and on one, five and ten pound spools.

Ask your jobber to supply you.

CHICAGO SOLDER CO.

CHICAGO ILLINOIS

You can't tell how much Bengal Tiger there is in a white rabbit until you put him on a meat diet





.....and you can't tell how many miles your tires can give you until you put them on a REGULATED, MEASURED, air diet. Just so many pounds pressure, no more and no less.

If you pumped up your tires every time they fell below the pressure specified by the tiremaker, they would last for the maximum distance. Don't say pumping is too much trouble. With a

SCHRADER UNIVERSAL PUMP CONNECTION

it is no trouble at all.

Ask your dealer to show you how it works.

Price Thirty-five Cents.

A. Schrader's Son, Inc.

783-803 Atlantic Ave.

Brooklyn, N. Y.

Over a MILLION motorists use



WOOD'S EVERLOC TIRE PATCH

THEY'RE coming thick and fast—those users of Wood's Everloc. The tire patch that PERMANENTLY repairs punctures and blowouts up to 17 inches in length certainly appeals to motorists.

Wood's Everloc is the original self-vulcanizing tire patch. It is guaranteed never to leak or creep.

Do away with laborious, dangerous heat vulcanizing. Use Wood's Everloc. At your dealers: 50c, $1.00, $1.50.

DEALERS: Write us or your jobber today for Wood proposition.

W. C. WOOD COMPANY

74 Western Avenue Minneapolis, Minnesota

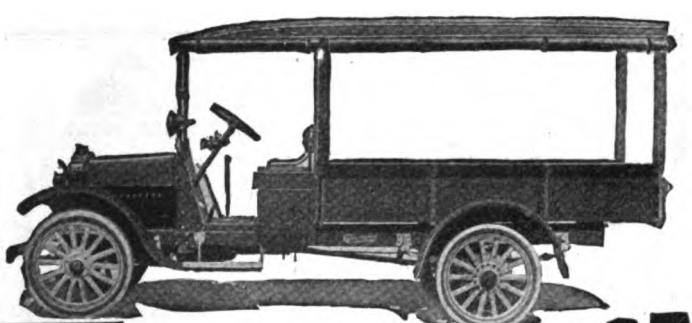
Special Garage Size 20 x 28 inches

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District Representatives

The manufacturer of a well-known automobile accessory will have several desirable District Agencies available very soon. Established business with jobbers and garages awaits a few high-grade men with moderate capital and the ability to create and maintain aggressive selling organizations. Possible curtailment in automobile production means greater demand than ever. Our National advertising and liberal dealer helps will get this business for you.

Address Box 12, Accessory Manufacturer, care of Motor World, Mallers Building, Chicago, Ill., for particulars.



Commerce

1 Ton Trucks

A Year Ahead *of* Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

Commerce Truck Motor, Detachable Head—Torbensen Rear Axle—Detroit Steel Products Company Springs.

One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company
DETROIT MICHIGA..

W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.

To hear some folks brag about their Kelly-Springfield mileage, you'd think our twenty-five years' experience in tire manufacturing had nothing to do with it.



Kelly-Springfield Tire Co.
Executive Offices
Seventh Ave. at 57th St., New York.
General Sales Department
1900 Euclid Ave., Cleveland, O.

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Cored Bars

HIGH SPEED NON-GRAN BEARING BRONZE

For Bushings

AMERICAN BRONZE CORPORATION
BERWYN, PENNSYLVANIA
Sole Manufacturers of Non-Gran and Largest Exclusive Manufacturers of Bearing Bronze in the World

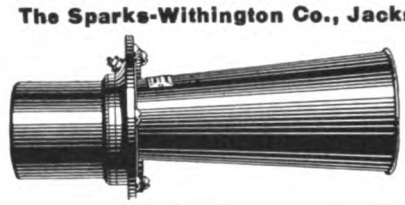
SPARTON PRODUCTS

First Choice of America's Best Cars

Sparton Motorhorns—hand-operated and motor-driven.
Sparton Gasoline Vacuum System.
Sparton Honeycomb Radiators and Sparton Radiator Fans.

The Sparks-Withington Co., Jackson, Mich., U. S. A.

(106)



SAFETY FIRST SOUND SPARTON

Trouble-proof Ignition

is not assured unless spark plug connections are made with the

HANDY TERMINAL

"Grips Like a Vise"

No more burned fingers. No more loose connections from vibration and jar. No lost nuts in the drip pan.

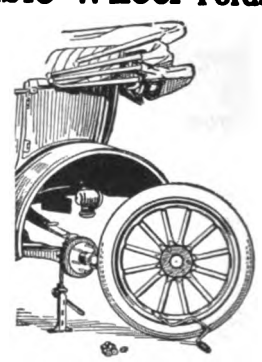
Dealers and jobbers are making worth while profits everywhere with this all-season seller. Write for proposition.

THE FRANCIS-RAND COMPANY
406 ERIE BLDG. CLEVELAND, U. S. A.

Simplicity Demountable Wheel For Fords

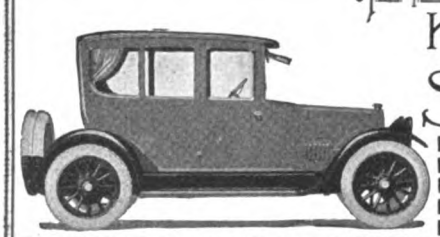
Nothing better on the market, sells itself wherever demonstrated, better than a demountable rim. It enables anyone to change wheels in four minutes or less, does away with all fear of punctures and is interchangeable with any wheel on a Ford car.

Write at once for complete details and Special Dealer's Proposition



Simplicity Wheel Co.
137 Monroe Ave.
Grand Rapids, Mich.

The New KISSELKAR 4 Passenger Sedane



Inspect its exclusive Kissel features. The ALL-YEAR Top is entirely removable or all side windows may be lowered or raised. Mounted on the Hundred Point Six—the car of a Hundred Quality Features—with the new Kissel-built power plant. Write, wire or 'phone us to-day for Agency openings.

Kissel Motor Car Company
Hartford, Wis., U. S. A.

KISSELKAR EVERY INCH A CAR

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Published weekly from Chicago. Central location and frequent issue ensure getting news to dealers without delay. Edited from the car owner's viewpoint. None the less invaluable to high-grade dealers interested in the latest news and advertising announcements to keep abreast of the times and competition.

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All genuine Graphited Oil-less Bushings have always been made at Bound Brook, U. S. A

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To keep weight of car off tires when not in use. The part which comes in contact with the car is made of wood and cannot injure paint.
Easily adjusted to any height wheel. Jack is easily raised and lowered and allows car to stand firmly. Footrest 5 x 8.

Made from best screw polished round steel half-inch diameter. Finished in black enamel. Set of four, weighs 24 lbs.

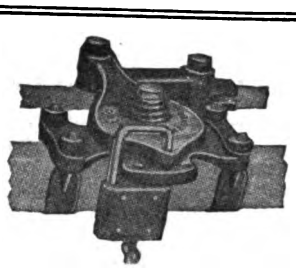
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C. A. Buffington & Co.,
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last approximately six months longer than the average battery. They are about 15 per cent more powerful in proportion to size and cost.
This is why their sale is now increasing on an average of over 60% every four weeks—a record no other battery has ever approached.

DETROIT BATTERY CO., Detroit, Mich.
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PRICES

East of the Mississippi	$5.00
With Lock	6.00
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Guaranteed to hold road and save fuel and tires

Make Money with
HELCO No. 2
Steering Control & Locking Unit

A proper mechanical center has long been sought by makers and users of cars. HELCO NO. 2 supplies it, and holds the front wheels in a straight course over ruts, snow, sand, mud, etc. Saves gas and tires by insuring better transmission and steadier tread.

Steering gear locks in position with high grade padlock, preventing theft.

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Quick sales and good discounts make HELCO a profitable dealer proposition. Write for details.

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Price
$7.50



Rothweiler Pump

Empties a Barrel or Drum Completely

No Waste ***No Drip***

Good for Oil, Gasoline, Turpentine, Light Paint, etc.

Works Easily, Quickly and Efficiently

A Great Trouble Saver

ROTHWEILER & CO.
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MAGNETO

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Sales and General Offices: 32-33rd St., Brooklyn, N. Y.

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Powerful
Durable
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Standard Equipment for 117 Manufacturers

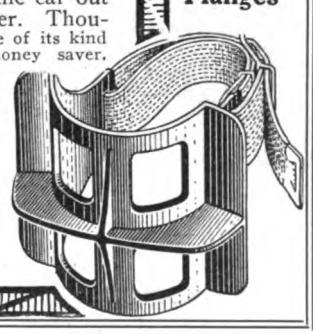
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$1.90 per set of two. Lift the car out instead of digging it in deeper. Thousands in use. Most effective device of its kind on the market. A time and money saver. Act with steady lift which does not strip the differential gears. Made of malleable iron with strong web trap. Put on or take off in a minute. Occupy small space.

At your dealers or by mail, postpaid. Give size of rear tire in ordering.

THE FULTON CO.
1910-12 St. Paul Ave., Milwaukee, Wis.

Note the Side Flanges



HAYNES

"Light Six" $1595
"Light Twelve" $2095

AMERICA'S FIRST CAR

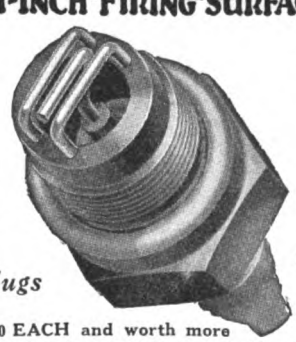
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Haynes enjoys a world-wide reputation for building long-lived cars of low upkeep. We intend that, during our *25th Successful Year*, Haynes dealers shall cash in on Haynes reputation to an even *greater* extent. Write

THE HAYNES AUTOMOBILE CO.
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A 1-INCH FIRING SURFACE

Ideal for all Internal Combustion Engines Using Spark Plugs



Specially Recommended for Heavy Duty in Trucks and Tractors

$1.00 EACH and worth more
BERGIE NATIONAL SPARK PLUG CO., Rockford, Ill.

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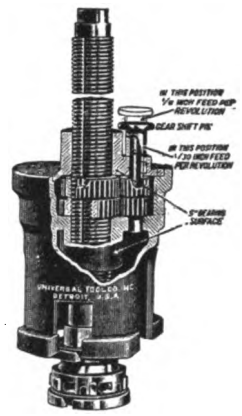
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Priced at $15.00

has proved its claim of superiority over ordinary engine driven tire pumps. May we mail you our circular telling why?

Send for our dealer proposition

HILTON UNIVERSAL AIR PUMP CO.
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The New Improved Universal Cylinder Reboring Tool

Is Built to Guarantee Absolute Accuracy

Designed to rebore practically all makes of automobile, tractor, stationary, marine or aeroplane—either open or closed end cylinders, and will rebore a true, round, straight bore. Cutters adjustable from 2½ to 5/16 of an inch. For other new and important improvements—

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Write for free illustrated literature with complete details.

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has become invaluable to the garageman. It has given him a quick, accurate check on the time required for every repair job. It has eliminated the possibility of arguments on time charged to the customer. More and more garagemen are putting their Garages on a business basis at small cost. They are installing Automatic time stamps. Why don't you?

Sample time tickets and complete data sent on request.



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Automobile Dept., 161 Congress St. Est. 1880
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Originators of the Art of Printing Time Automatically

Carry a Few in Stock this Season

Next season you will do it without being told.

The need for trailers is so general that they are easy to sell. They get easier to sell every month as people get used to the trailer idea. The trailer has come to stay because it is the only logical way to solve carrying problems.

The illustration shows Model No. 41 (our smallest) one-half ton capacity. Price $85.

The Ohio Trailer Co.
58 Doan Avenue
Cleveland, Ohio



OHIO TRAILERS MODEL 41 $85.00

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CASTOR MOTOR OIL

The only perfect heat resisting oil because of the compounded pure castor and high grade mineral oils. More miles—less gas.

'Keeps Your Motor Young"

Send for Booklet M-107

SEXTON OIL CO., North Chicago, Ill.

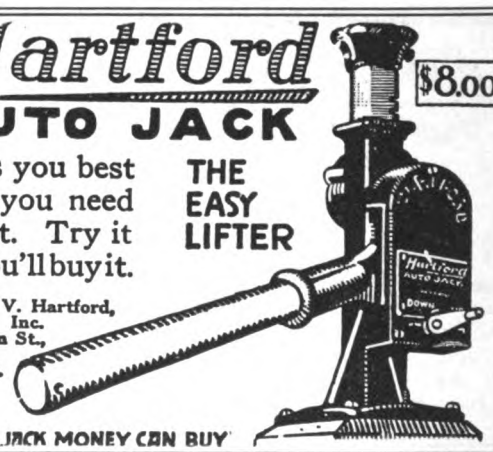
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$8.00

Serves you best when you need it most. Try it and you'll buy it.

THE EASY LIFTER

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THE BEST JACK MONEY CAN BUY

TRUXTUN

Converts *any* car into a substantial 1-ton or 1½-2-ton truck

Exclusive territory and attractive dealer proposition

COMMERCIAL CAR UNIT CO.
Philadelphia, U. S. A.



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THE PATCH ETERNAL

Not merely a piece of rubber with a cloth back, but a scientific composition made with that definite purpose of permanently repairing injured inner-tubes.

Sold only through your jobber. If he is unable to supply you write direct.

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MONROE, LOUISIANA

BETHLEHEM MOTOR TRUCKS
"Dependable Delivery"

$1245 1¼ Ton Chassis
$1305 1¼ Ton Complete with body and cab
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Built to dominate the truck business in your territory—backed by the Bethlehem guarantee and a strong national advertising campaign. Is your territory covered?

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Makers of Springs and Axles for Heavy Duty Service for more than Fifty Years

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Miles Cheaper

Users Report Records of
8,000
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Quaker City Rubber Co.
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Get Your ROEDDING Signal Tail Light Territory Now

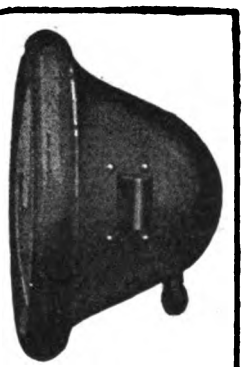
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It has been our endeavor to create a commercial vehicle that would excel first of all in the quality of the material used, and, second, in the economy of its operation.

Our reputation for producing the most lasting truck is recognized by our many users.

We offer for your convenience the following sizes:

1½-ton 3½-ton
2-ton 5-ton
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THE LAIDLAW CO., Inc.
16 W. 60th St. New York City

AUTOMOBILE FABRICS

A Fabric for Every Purpose for Open, Closed, and Convertible Bodies

KIMBALL TIRES
Are Doubling Profits for Some Dealers

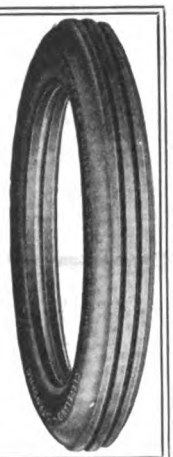
Write for Our Interesting Offer

These tires are sold without a guarantee. Write and ask us how we do it. They are positively *not* seconds, but first-class fresh casings.

	Non-skid	Tubes		Non-skid	Tubes
30x3	$ 7.55	$1.90	32x4	$14.75	$3.05
30x3½	9.85	2.15	33x4	15.75	3.10
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Prices on Other Sizes in Proportion

Send us your order today, accompanied by cashier's draft on Chicago or New York, or money order. Large and small orders given immediate attention. *Write today for territory. Prices will positively be advanced shortly. Place your order now.*



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This "Straight Side" Type is Made Also in Clincher Type

AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

THE industrial authority on all matters connected with the automotive industries.

The oldest weekly journal in the field.

Its scientific articles are complete and authoritative—its editorials of importance—its news accurate and valuable.

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Add to Garage Profits by Oxy-Acetylene Welding

savings made, please your patrons and pay good substantial profits.

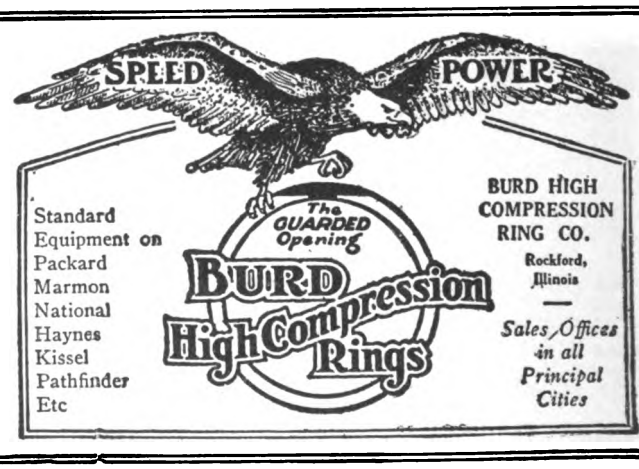
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Dissolved Acetylene
(Ready-made carbide gas)

adds to the efficiency and usefulness of any good welding equipment. We furnish thoroughly high-grade welding apparatus for $75.00 (Canada, $100.00). The average user will also need gas cylinders at an additional cost, and about $10.00 worth of welding supplies. Truck and special equipment for cutting operations at extra cost.

Send for details of Prest-O-Lite Service for Oxy-Acetylene Welding.



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Standard Equipment on
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"TRIPLEXD"

The New Gasoline Hose.
Metal, Rubber and Fabric welded into one unit. Guaranteed for one year.
Write for details.

METAL HOSE & TUBING CO. INCORPORATED
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VULCAN QUALITY
AUTOMOBILE SPRINGS

SPRINGS IN STOCK FOR ALL CARS
90,000 Springs. 588 Types.
6—FACTORY BRANCHES—6
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Reading, Pa. 533 Franklin St. Ft. Worth, Tex. 708 Commerce St.
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JENKINS VULCAN SPRING CO.

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Ask us to send you a set of these, along with descriptive booklet and dealer proposition —if you are selling automobile accessories.

Dandy profits for dealers.

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Schutte SPORT BODIES

ARE BUILT
TO FIT ANY MAKE OF CAR
"MILITARY SPORT MODEL"
Popular Among Officers

Schutte DISC WHEELS

INCLOSURES
FOR ANY STYLE OF
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ECON-O-KLEEN

YOU PUT IT IN THE GASOLINE

$1



Makes Carbon in the Motor Go to Work

Over 800 cans were sold in 6 weeks, without a line of advertising. NOW OUR BIG CAMPAIGN IS ON. ECON-O-KLEEN sales—and re-sales—pay. *They all come back at $1 a can.*

Write for complete details today. Get Doc O'Kleen's Prescription NOW.

Econ-O-Kleen Fuel Company
Thief River Falls, Minnesota



Style A—for windshields of all large cars. Patented ball bearing joint—easily adjustable. Made also for Fords and small cars.

There's a great opportunity for profits to dealers and jobbers in the

HINDVIEW AUTO MIRRORS

A style for every car—staunchly made—finely finished—plate glass mirrors—attractive in price—a great display

They sell themselves.

Write today for proposition and catalog.

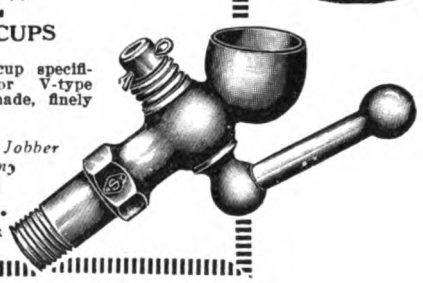
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Your Line is Incomplete without the "VEE" PRIMING CUPS

STEVENS NEW YORK

the only priming cup specifically designed for V-type motors. A well made, finely finished job.

Service thru your Jobber means Economy



Stevens & Co.
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Inter-State

A Driving Difference



Ample room back of the wheel and a comfortable, roomy seat for the driver mean one sort of comfort. But confidence of easy steering and smooth acting control adds a freedom and satisfaction which makes the mastery of an Inter-State a thing of mental comfort as well.

You should be an Inter-State dealer and profit by this driving difference. Write us today.

$1,000 to $1,025
Effective December 1st, 1917

INTER-STATE MOTOR COMPANY
MUNCIE, INDIANA

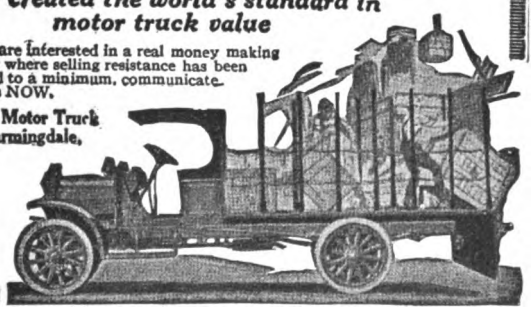
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1½ Ton Capacity

Has created the world's standard in motor truck value

If you are interested in a real money making agency where selling resistance has been reduced to a minimum, communicate with us NOW.

Fulton Motor Truck Co., Farmingdale, L. I., N. Y.





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Genco-Light

Supplies the Farm Home with every advantage of Electricity—Fine proposition for live dealers.

Garages also find GENCO-LIGHT a money saver in battery charging, air compressor work, etc.

Write for particulars

General Gas Electric Company
Hanover, Pennsylvania

The Pullmore Front Drive TRUCK is here

Union Arcade, Pittsburg, Penna.

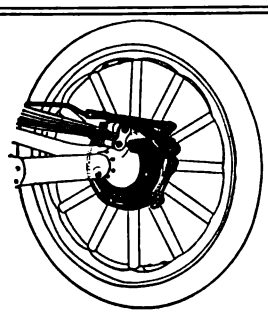
MR. DEALER

One dealer in a town of 3000 people installed Forty Sets of **"Pla-Safe Brakes"** last March. Another dealer in a crossroads town installed twenty-five sets this summer.

All you need to do is to show a Ford Owner this Brake and he buys it.

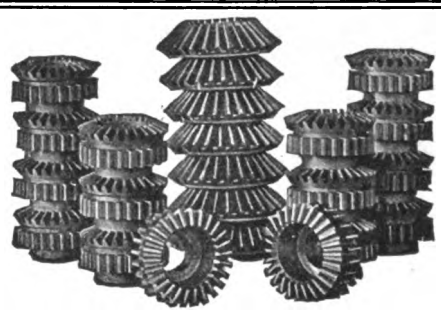
Simple to install, no holes to drill. Why not cash in on this fast-selling accessory?

Write for our Disc and Big Selling Plan.



Retail price $10.00 per Set

PLA-SAFE CO. Successors to L. A. Leathers Co. **BROOKVILLE, PA.**



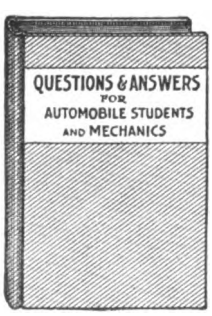
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Complete differentials, gears for transmissions, spur helical and bevel gears for any service.

In any quantities— made to order

NEW PROCESS GEAR CORPORATION
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Questions and Answers



For Automobile Students and Mechanics

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A book of 600 Questions and Answers, adapted for teaching School, the Machineshop or before the Board of Examining Engineers. This is the largest, the latest and most authentic book of its kind upon the market. Prepared especially for Home Study. 150 pages. Bound in flexible Covers—In fact it is a regular text book. Cloth cover, price $1.00. SENT FOR $1.50 PREPAID.

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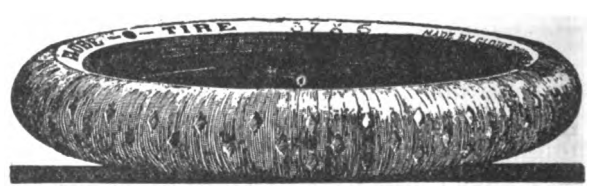
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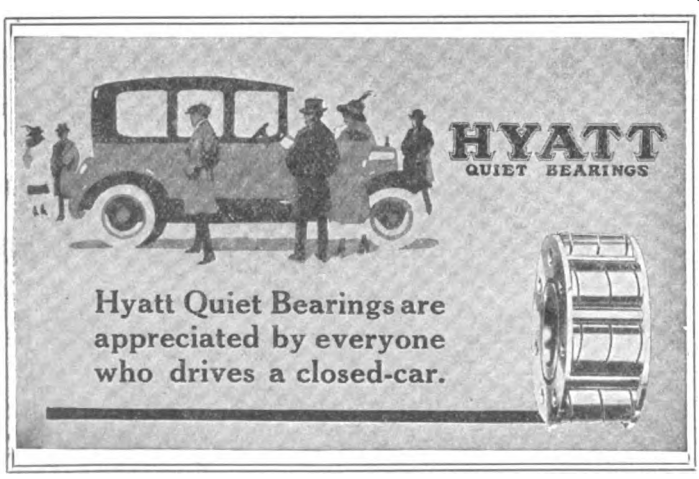
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GUARANTEED 6000 MILES
REDUCE THE OPERATING COST OF YOUR CAR

Long Mileage Tires MUST Be Hand Made

GLOBE RUBBER TIRE MANUFACTURING CO.
Executive Offices: 1851 Broadway, New York, Factory: Trenton, N.J.





The "Big Stick" That Brings Down Gasoline Expense

Up goes the price of gasoline! Maximum mileage is the big problem of the day! Solve it with the New Stromberg Carburetor.

The official world's records made by the New Stromberg in gasoline mileage prove that you need the New Stromberg on your car. Mail coupon for details of how the New Stromberg will reduce your gasoline bills.

Stromberg Motor Devices Co., Dept. 18, 64 E. 25th St., Chicago

New STROMBERG Does it!
CARBURETOR

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Service Stations in Every State

Selden Trucks

Light Delivery, 1, 2, 3½ and 5 Ton

Write for full information on the Selden Line

DEALERS: Write or wire for desirable territory

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Rochester, N. Y., U. S. A.

The Name "WESTCOTT" on the Handle



It shows you are carrying the best wrench in the world. The "Westcott" is the original adjustable "S" Wrench. It gives the service. Mechanics want them because they know that fact.

Malleable iron handle—Forged Steel Jaw.
Sizes 6 to 14 in. (opens ¾ x2 in.) Price per doz., $8.00 to $21.

Get them in your catalog

THE KEYSTONE MFG. CO., Buffalo, N. Y.



GUARANTEE VISIBLE PUMPS

are replacing all the "blind" type pumps at gasoline filling stations and garages.

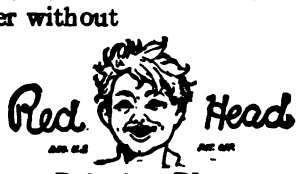
Fast, accurate, not affected by temperatures.

Guarantee Liquid Measure Co.
Farmers Bank Building, Pittsburgh, Pa.



Starts the Engine Cold

Ford cars are difficult to start in cold weather without



Priming Plugs

A few drops in the cylinder thro' the priming plug—and the engine hums.

$1.50 Everywhere.

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Bush Terminal No. 20 Brooklyn, N. Y.
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Recommend W & C

to customers who merely ask for shock absorbers. W & C is what they mean. It insures the easiest riding Fords.

Ask your jobber's salesman or write us direct.

P. H. WEBBER COMPANY
HOOPESTON, ILLINOIS

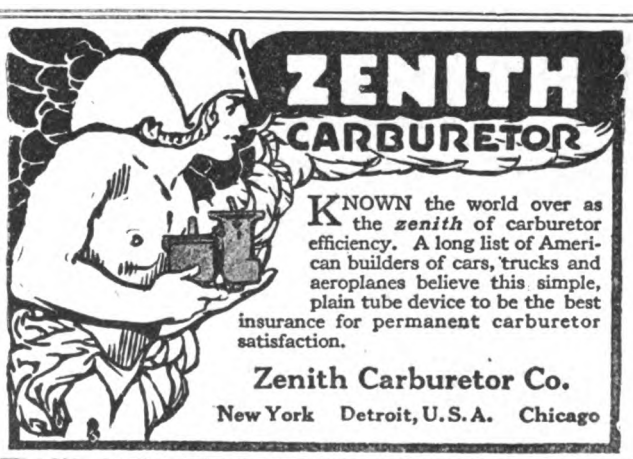
NEW DEPARTURE BALL BEARINGS



Strength
Stamina
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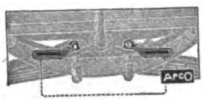


The New Departure Manufacturing Co., Bristol, Conn.
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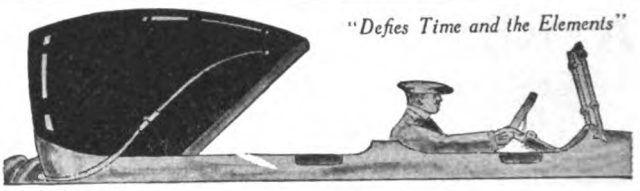
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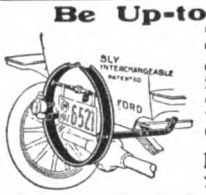
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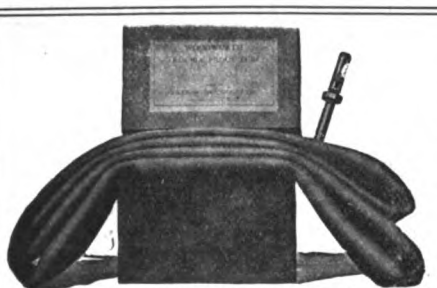
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30x3½	8.75	2.30	34x4	15.00	3.65	37x4½	22.80	4.60
32x3½	10.50	2.45	35x4	15.85	3.75	35x5	23.10	4.65
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Any garage, machine or repair shop with machinery on hand that is out of service for one reason or another will find a ready market and secure good prices through Motor World's Classified Column.

Tell us what you have.

Classified Department
Motor World

SOMEWHERE there is just the lathe or machine that you need for your shop. It's just as good as new—the price will save you many a dollar. Tell Motor World Classified Department just what you want and we will make up an advertisement that will carry your message to the man who wants to sell and mail it to you with advice as to cost per insertion by return mail. Address

Classified Service Department **Motor World**

OFFICE AND SALESROOM

PRINTING THAT PAYS
executed by
PRINTERS WHO KNOW
We have an Economy Message for you!
BEACON PRESS
141-145 West 36th St., New York City
Phone Greeley 856

"Buckskin" Carbon Papers and Typewriter Ribbons

These Products are *World Famous* today because they are *made right* and *Satisfy*. That is why the *Demand* for them is continually *increasing*, and it should be your reason for sending us an *initial order*. Samples upon request.

Fred W. Neely Company
508 South Dearborn St., Chicago

Situation Wanted Advertising Rate
25 cents per line, minimum price $1.00 —a full remittance must be sent with each order.

Open for position Jan. 15th, as factory representative or territory salesman on popular-priced car, not subject to draft—a getter of "clean" business, and some financial responsibility; acquainted in Minnesota and the Dakotas. Salesman, care of MOTOR WORLD.

ATENTION—Position seekers. Any man looking for a good connection in the motor car field should seriously consider giving this paper the opportunity to locate the desired job, especially at rates quoted which are about one-half the classified rates. We will write your advertisement free of charge on receipt of full information as to your experience, age and any other information which will help us to make up for you an attractive advertisement. Situation expert. Classified Advertisement Department, Motor World.

Color & Half-tone **Printing** ADVERTISING COMPOSITION *Perfect Service*
AFFERTON PRESS
Phone 9063 Chelsea 406-426 West 31st St.

Classified Advertising Brings Results

If you want to reach the Dealers, Garages and Jobbers of the Country, Motor World is the medium for advertising rates. Address Classified Advertising Dept., MOTOR WORLD.

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CONTRACT WORK

Advertisers in This Section Have Facilities at Their Disposal to Take on Additional Work on Contracts. Truck Specialties of All Kinds Manufactured on Contract Basis. Special Machinery, Press Work, Truck Machine Work, Foundry Work, Automatic Screw Machine Work.

CASTINGS
Malleable
Grey Iron

GIBBONS FOUNDRY & MACHINE COMPANY
Industrial Engineers
EXPERT TOOL AND DIE MAKERS
East 25th and Vale Streets, Des Moines, Iowa
WRITE *PHONE* *WIRE*

Lathe & Milling
Gear Cutting
Machine Parts
Designers

Over 50,000 square feet of machine shop and foundry in connection.

An organization of MERIT, Insuring you of PROMPT and EFFICIENT SERVICE.

Special Machinery

Drawing, Blanking and Forming Dies—Tools
Gauges, Jigs and Fixtures

All Work Gauged by Johansson Gauging System
Promptness and Accuracy Guaranteed

Stampings of All Kinds

BUDD & RANNEY
Engineering Company
Columbus Ohio

GRINDING

External, Internal, Surface and Cylinder

HOUPERT MACHINE COMPANY
353 W. 52nd St. New York, N. Y.

Henry C. Griffin & Co., Inc.
PATTERN MAKERS
Wood Patterns. Metal Patterns.
Automobile Work a Specialty.
Models and Experimental Work.
143-145 VARICK STREET
Near Spring Street, NEW YORK.
Phone 4257-4258 Spring.

LIGHT METAL STAMPINGS

Dies, Models and Machine Work.
Small Turret Lathe Work.
Large and Small Quantities.

JOHNSON MANUFACTURING CO.
103 North Front St. Philadelphia, Pa.

LET US BUILD YOUR BODIES

Limousine, roadster, touring car, speedster, truck, hearse and ambulance bodies built in our factory by experts, with new and modern equipment, FOR YOU. Best shipping facilities. On 3 big railroads. Let us submit an estimate on your requirements.

Address Charles E. Becker
THE JONES MOTOR CAR COMPANY
Wichita KANSAS

Pattern Work for Airplanes

The Curtiss Airplane Co. profits by our Pattern Department. Why not you? Specialists in wood or metal—20 years' experience. Good work done quickly.

The Newark Stamping and Foundry Co.
Plant No. 2. NEWARK, OHIO.

WANTED

METAL STAMPING AND PUNCH PRESS WORK

STANDARD METAL MFG. CO.
Chestnut, Jefferson & Malvern Sts.
Newark, N. J.

EXCELLENT FACILITIES FOR
METAL STAMPINGS

Dies, Tools, etc. Contract work solicited. Prompt delivery. Prices right.

FRANKFORD MACHINE CO., Inc.
4099 Frankford, Philadelphia, Pa.

Brass and Bronze Castings

also
Machining, Polishing, Plating and Pattern Work

John Thomson Press Co.
258 Broadway Dept. H New York
FACTORY: Long Island City

Hundreds of Machine Shops Are Ready for Contract Work.

Tell us your needs and we will find the shop that will handle the work for you. Motor World Contract Work Department, 239 West 39th Street, New York.

If your manufacturing requirements cannot be handled by firms now advertising, we should appreciate the opportunity of locating a firm that can render such special service as your business may demand. Our investigation of the contract situation as it now stands places us in a position in which we can be of valuable service to the manufacturers of the automobile industry. If interested please communicate with the Contract Work Department, Motor World, 239 West 39th St., New York City.

WINTER BUSINESS

Garages, Repair and Machine Shops

Every idle machine can be made to earn a profit during the winter months

THE LATHE—DRILLS—MILLING MACHINE—in fact, every wheel in your entire shop can be kept busy.

The Automotive Industry places annually work running into hundreds of thousands of dollars.

Every month counts, and during the next three or four months your profits can be materially increased by handling contract work.

You can describe your manufacturing equipment through an advertisement inserted in MOTOR WORLD'S Contract Work Section.

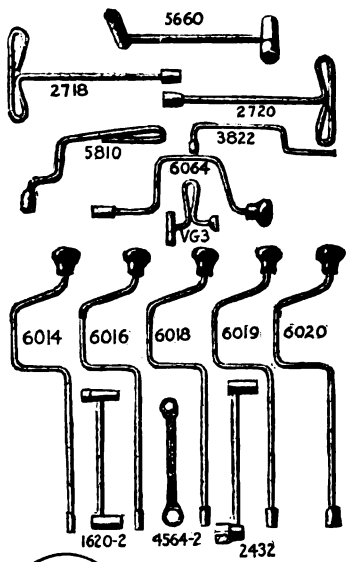
Why not? The motor car industry is overloaded with manufacturing work, including Government work, such as aeroplane, Liberty Motor, trucks and tractors. The opportunity is an exceptional one—further, every wheel should be kept moving this winter to the advantage of the country, and your profits.

Motor World Contract Work Department

239 West 39th Street NEW YORK

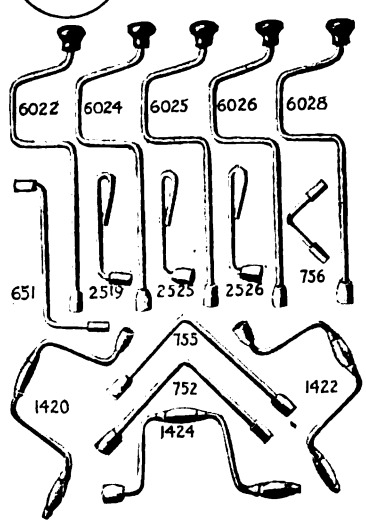
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No. 30 GARAGE SERVICE Sets



WALDEN WORCESTER WRENCHES

Nº 30 GARAGE SERVICE SET



A WRENCH combination perfectly adapted for work on any motor car, with which time and labor cost to the customer may be economized, and the productiveness of the shop and its facilities largely increased.

These are special tools, designed after careful study of garage service, each serving a specific purpose and having qualities necessary for thoroughly good work.

These 30 wrenches, some with two sockets, are equivalent to 39 different sizes and types, as follows:

Offset Wrenches....13
Speed Wrenches....10
L-Wrenches 6
Special Wrenches... 5
Demountable Rim Wrenches.. 3
Tee-Handle Wrenches.. 2

Total.....39

The combination was made to fit all popular makes of cars—to work wherever particular type wrenches are necessary. Every condition that makes for economy and time saving has been anticipated and utility provided for.

With the No. 30 Garage Service Set you will have every wrench you will need. Your equipment will be standardized. The quality of work insured.

List Price, $20

Walden-Worcester
INCORPORATED
Worcester, Mass.

WALDEN WORCESTER WRENCHES

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Gasoline by Air Pressure

TESTED:—The Allen System for the storage and distribution of gasoline by air pressure is not an experiment.

The System is a demonstrated success—in actual operation in many garages and mercantile establishments where it is daily giving marked satisfaction.

You are invited to see an actual installation at our New York office, or write for details to

The Allen Pressure System Co., Inc.
22 West 61st Street New York

THE SAME ALLEN
ALLEN
WHO MAKES THE TIRE CASE

FORD OWNERS—
Why Be Crabs?
Lengthen Your Arm!
A Notched Stick Will Turn an Oil Cock but it takes a
CLEANING PIN
to prove if the crank case is empty or the cock merely stopped up.

STOP CRAWLING UNDERNEATH YOUR CAR
For FORD Cars
GET AT YOUR OIL COCKS WITH EASE
35¢
FAWSCO IMPROVED COMBINATION
OIL COCK WRENCH AND GASOLINE GAUGE
THE PIN CLEARS ANY STOPPAGE

(*Reproduction of Display Easel Furnished*)

Our Patented Wrench with Cleaning Pin is the Only Tool with This Feature

Dealer's Price Doz. $2.80

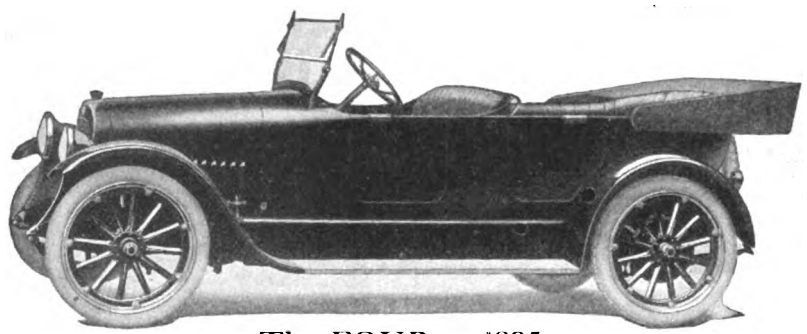
If Your Jobber Cannot Supply, Write Us

J. H. FAW, Inc., 43 Warren Street, New York

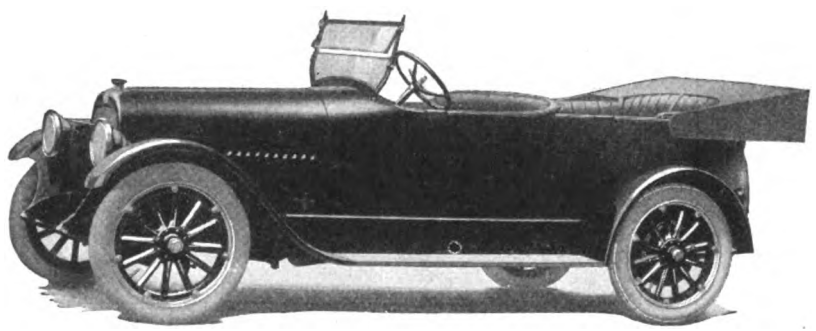
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Studebaker

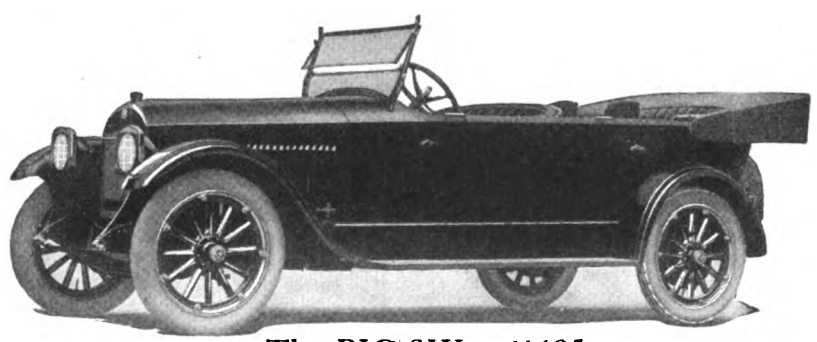
Beautiful in design—Thoroughly modern
Mechanically right



The FOUR — $895
3½ x 5 in. Motor, 35 h.p.; 112 in. Wheelbase; 32 x 3½ in. Tires.



The LIGHT-SIX — $1295
3½ x 5 in. Motor, 50 h.p.; 119 in. Wheelbase; 32 x 4 in. Tires.



The BIG-SIX — $1695
3⅞ x 5 in. Motor, 60 h.p.; 126 in. Wheelbase; 33 x 4½ in. Tires.

THESE CARS were the sensation of the New York Show. They will be on exhibit at the Chicago Show, January 26th to February 2nd.

STUDEBAKER

Detroit, Mich. South Bend, Ind. Walkerville, Ont.

Address all Correspondence to South Bend

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WIRE WHEELS





A tensile strength of 3200 pounds in each spoke provides ample margin of safety to meet all emergencies.

for STRENGTH

STRENGTH that has proved itself against the racking strains of racing automobiles is the strength you want for your car. Racing car drivers whose lives depend on the wheels under their cars insist on wire wheels. Aeroplanes are equipped with wire wheels not only because they are lighter but because they are strong enough to stand the severe strain of alighting. By these supreme tests you may know that wire wheels are many times stronger than wood wheels.

Remember these facts when you specify for your new car, or want something better than present equipment.

Each spoke of a wire wheel is scientifically tested and stands a strain of 3200 pounds. There are from 66 to 72 of these tempered steel spokes to share the load on a wire wheel, instead of 12 wood spokes in a wood wheel. By their truss arrangement in triple rows at either side of the rim and hub, the spokes of a wire wheel will support side thrusts in skidding, collision, or taking sharp turns at high speed that would demolish a wood wheel.

No properly made wire wheel has ever collapsed. In no other accessory can you buy so much safety insurance. Wire wheels make incidents of accidents. For the protection of yourself and family have your dealer or service man attach a set of wire wheels, or write us for prices, stating the make and model of your car.

Our booklet explains the safety, comfort, economy, easy handling, and other advantages of wire wheels. Ask us for it.

DEALER OPPORTUNITY

Unoccupied territory for exclusive service and sales agencies can be secured by established automobile distributors and accessory dealers.

A selling field of practically every standard make of car, with our liberal terms, offers unusual profit possibilities.

Ford agents and supply dealers should write or wire at once for special service and sales proposition on HOUSE Type Wire Wheels for *Ford* Cars.

WIRE WHEEL CORPORATION *of* AMERICA
(Successors to Houk Manufacturing Co.)
Factories: BUFFALO, N. Y., and SPRINGFIELD, MASS.
Direct Factory Branches and Service Stations:

NEW YORK, 835 Eleventh Ave. at 57th St.
PHILADELPHIA, 328 North Broad St.
LOS ANGELES, 1101 South Hill St.
CHICAGO, 23rd and Indiana Ave.
DETROIT, 16 Davenport St.
SAN FRANCISCO, 1243 Van Ness Ave.

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Car owners are being constantly reminded of

USL BATTERY SERVICE

In each town we run a *local* advertising campaign to remind car owners that there is a splendidly equipped USL service station ready to keep car owners' batteries in perfect condition.

We help the service station to keep its name before the public so that car owners may know where to go for honest advice and intelligent service.

If there is no USL Battery service station in your town let us tell you about USL Battery equipped cars; your opportunities in the battery business, and how we will advertise you to car owners in your territory.



U. S. Light & Heat Corporation

Niagara Falls, N. Y.

Branches in

New York	Chicago	San Francisco
Detroit	Kansas City	Washington, D. C.

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94
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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 5

New York, January 3[illegible], 1918

Ten cents a
Two dollars a

What Will You Do If You Can't Get Cars?

That Situation is Quite Probable With Dealers Who Do Not Make Early Arrangements for Territory

Never in the history of the world has there been so much money in circulation as there will be during the next twelve months.

The government program calls for a monthly expenditure exceeding a billion dollars. An appropriation of two hundred million dollars for railroad equipment is planned. Investors are to be guaranteed returns on their holdings. Farmers know there will be a certain and profitable market for all they can produce. There is evidence that wages are to be increased—in some lines the discussion mentions as much as 40 per cent.

Everyone knows what so much money in circulation does to the demand for automobiles. Add to that the growing needs of the nation for motor car transportation caused by the increased loads upon the railroads.

Now think how serious the situation promises to become because of curtailed production. This year's output will be at least 40 per cent under that of last year.

All the facilities of the Hudson factory that can be used to advantage for government work will be devoted to making army trucks and transmissions for army tanks. It leaves us with facilities for building 15,000 Hudson Super-Sixes.

Fifty thousand Super-Sixes, more built than of any other fine car, have been sold during the past two years. You can see how inadequate the number available this year will be.

We are merely meeting the minimum needs of our Distributors. They will first of all take care of their most loyal dealers. The eleventh-hour contractors may find it too late to arrange for deliveries.

Delayed decision on your part may deprive you of cars this year.

HUDSON MOTOR CAR CO.
Detroit, Michigan

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Van Sicklen
ELGIN
SPEEDMETERS

A standard among speed-recording instruments as the Elgin watch is a standard of timekeeping.

Reliability and accuracy distinguish them both.

The Van Sicklen Company, Elgin, Ill.
Factory—Elgin National Watch Company

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What the New York Newspapers Said About the New Studebaker Cars

One of the exhibits which is attracting unusual attention is that of the Studebaker Corporation, which presents an entirely new line of cars in which about the only thing left unchanged is the nameplate. They constitute one of the real sensations at the big exhibition. —*New York World*

Bodies of all three cars are distinctive and graceful in appearance. They are of full stream-line type, low-hung, clean cut and unusually attractive. —*New York Herald*

Cars of rare body design. —*New York Post*

The Studebaker people have been successful in their efforts to produce a complete line of cars for 1918, appealing to different classes of taste and different sizes of pocket-books. —*New York Mail*

Entirely new lines mark the Studebaker Big Six. —*New York Tribune*

One of the big crowds, both afternoon and evening, was around the Studebaker cars, attracted by the new Light Four chassis and the Chummy Roadster. —*New York Times*

The fine lines of this car (Studebaker Big Six) are attracting lots of attention at the Show. The bodies of all the new Studebakers have caused much favorable comment.— —*New York Sun*

Studebaker's new models are impressive. Distinction and economy of operation are combined in their stream-line bodies. —*New York American*

This year, true to tradition, Studebaker is again in the limelight. —*New York Globe*

The FOUR $895 **The LIGHT-SIX $1295** **The BIG-SIX $1695**

All Prices F. O. B. Detroit

STUDEBAKER

Detroit, Mich. South Bend, Ind. Walkerville, Ont.

Address all correspondence to South Bend

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STEPHENS

Salient Six

Energy

WITH the energy of a waterfall, the Stephens engine is as smooth flowing in its mighty power. Perfect balance and complete fuel combustion compass this achievement. Perfect balance is created by infinitely careful machining-to-equal-weight of the reciprocating parts.

Complete combustion is due to a superior gas-handling system—a hot spot to super-heat the gases, intake manifold surrounded by heat and unusually large valves being contributing factors in the assembly of this perfected overhead-valve engine which burns ALL the gasoline.

Three-Passenger Roadster	$1485
Four-Passenger Touring	$1550
Five-Passenger Touring	$1485
Five-Passenger Victoria	$1660
Five-Passenger Touring Sedan	$1985

Prices F.O.B. Factory.

Stephens Motor Branch
of Moline Plow Co., *Moline, Illinois*

Factory: Freeport, Illinois

DEALERS: There is a Stephens Model for every use. Stephens representation gives you self-selling cars to cover a large field of users.

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MOTOR WORLD
for DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

The Class Journal Co.

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W. I. Ralph, Vice-President E. M. Corey, Treasurer
A. B. Swetland, General Manager

Business Department
Charles B. Shanks, Manager

Editorial Department
David Beecroft, Directing Editor
Stanley P. McMinn, Managing Editor
Ray W. Sherman, Editor
S. T. Williams

Branch Offices
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"NORMA"

BALL BEARINGS

(Patented)



Service—that's what the buyer of a car or truck pays for. Its value to him lies in the measure of the service it renders. And this service must be a thing inherent throughout the machine—not merely in body, chassis or engine, but in every minute detail entering into their construction and equipment.

No part of the equipment is more vital than the magneto and lighting generator. And no part of these accessories is more vital than their bearings. Therefore—makers of high-grade, responsible magnetos and lighting generators have standardized on "NORMA" Precision Bearings.

Be *Sure*—See That Your Electrical Accessories Are "NORMA" Equipped



THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK
Ball, Roller, Thrust and Combination Bearings

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GRAY & DAVIS STARTER for FORD cars

Every Ford is really complete when equipped the Gray & Davis way. Ford owners know the value of electric starting and lighting especially on rainy days or in cold weather.

The Gray & Davis system has made good on thousands of Fords everywhere.

Mr. Dealer

Handle this Ford starter; develop the sales that are awaiting you in your vicinity; just approximate the number of Ford owners and you can quickly total the business to be done in the territory.

Here is a splendid opportunity to equip Ford cars with a good starter which not only gives full satisfaction to the customer, but increases your own sales and profits.

Write to nearest Distributor or communicate with us.

DISTRIBUTORS

Atlanta, Ga.	Ozburn Abston Co.	397 Peachtree St.
Baltimore, Md.	Eugene I. Rosenfeld Co.	325 West Baltimore St.
Boston, Mass.	Mitchell & Smith, Inc.	1092 Commonwealth Ave.
Buffalo, New York	Meinhard Auto Supply Co.	846 Main St.
Charleston, West Va.	Triple State Electric Co.	16 McFarland St.
Chicago, Ill.	U. S. Auto Supply Co.	3845 Wabash Ave.
Cincinnati, Ohio	Ohio Rubber Co.	228 West Seventh St.
Cleveland, Ohio	C. Z. Sedgley	1010 Chestnut Ave.
Columbus, Ohio	Justus & Parker Co.	129 East Gay St.
Detroit, Mich.	Fred E. Holmes Co.	1602 Woodward Ave.
Fort Dodge, Iowa	Swaney Auto Co.	618 First Ave., North
Hartford, Conn.	Elmer Automobile Co.	Cor. Church & Trumbull Sts.
Indianapolis, Indiana	The W. R. Wheeler Co.	426 North Meridian St.
Kansas City, Mo.	Kansas City Automobile Supply Co.	1504 Grand Ave.
Los Angeles, Cal.	Western Rubber & Supply Co.	1011 South Olive St.
Louisville, Ky.	Ozburn Abston Co.	661 South Fourth St.
Memphis, Tenn.	Ozburn Abston Co.	Monroe Ave. at Third St.
Milwaukee, Wis.	Lemke Electric Co.	509 Cedar St.
Minneapolis, Minn.	Reinhard Bros. Co.	14 East 8th St.
New Orleans, La.	Interstate Electric Co.	Baronne & Perdido Sts.
New York City	P. J. Durham Co.	244 West 49th St.
Newark, N. J.	P. J. Durham Co.	235 Central Ave.
Omaha, Nebraska	Auto Electric Service Co.	316 South 19th St.
Parkersburg, West Va.	H. P. Dils & Son	211 Sixth St.
Philadelphia, Penna.	J. H. McCullough & Son	219 North Broad St.
Pittsburgh, Penna.	Penn Storage Battery Co.	5986 Center Ave., E. End
Portland, Oregon	Ballou & Wright	Broadway at Oak
Providence, R. I.	Dutee Wilcox Flint	17 Snow St.
Richmond, Va.	Universal Motor Co.	1012 West Broad St.
Rochester, New York	J. Lawrence Hill Co.	21 Plymouth Ave.
Salt Lake City, Utah	Inter-Mountain Electric Co.	43-59 East 4th St., South
San Francisco, Cal.	Weinstock Nichols Co.	538-546 Golden Gate Ave.
Seattle, Wash.	Ballou & Wright	817 East Pike St.
Sioux City, Iowa	William Warnock Co.	
Spokane, Wash.	Auto Ignition & Speedometer Co.	1105 First Ave.
St. Louis, Mo.	Fred Campbell Auto Supply Co.	1109 Locust St.
Utica, New York	Utica Cycle & Supply Co.	117 Columbia St.
Washington, D. C.	Charles Rubel & Co.	1312 Fourteenth St., N. W.
Wichita, Kansas	Auto Supply & Tire Co.	227 South Lawrence Ave.
Tampa, Florida	D. F. Owen Company	219 Franklin St.
Windsor, Ontario	Universal Car Agency	Chatham & Ferry Sts.

GRAY & DAVIS, Inc., Boston, Mass.

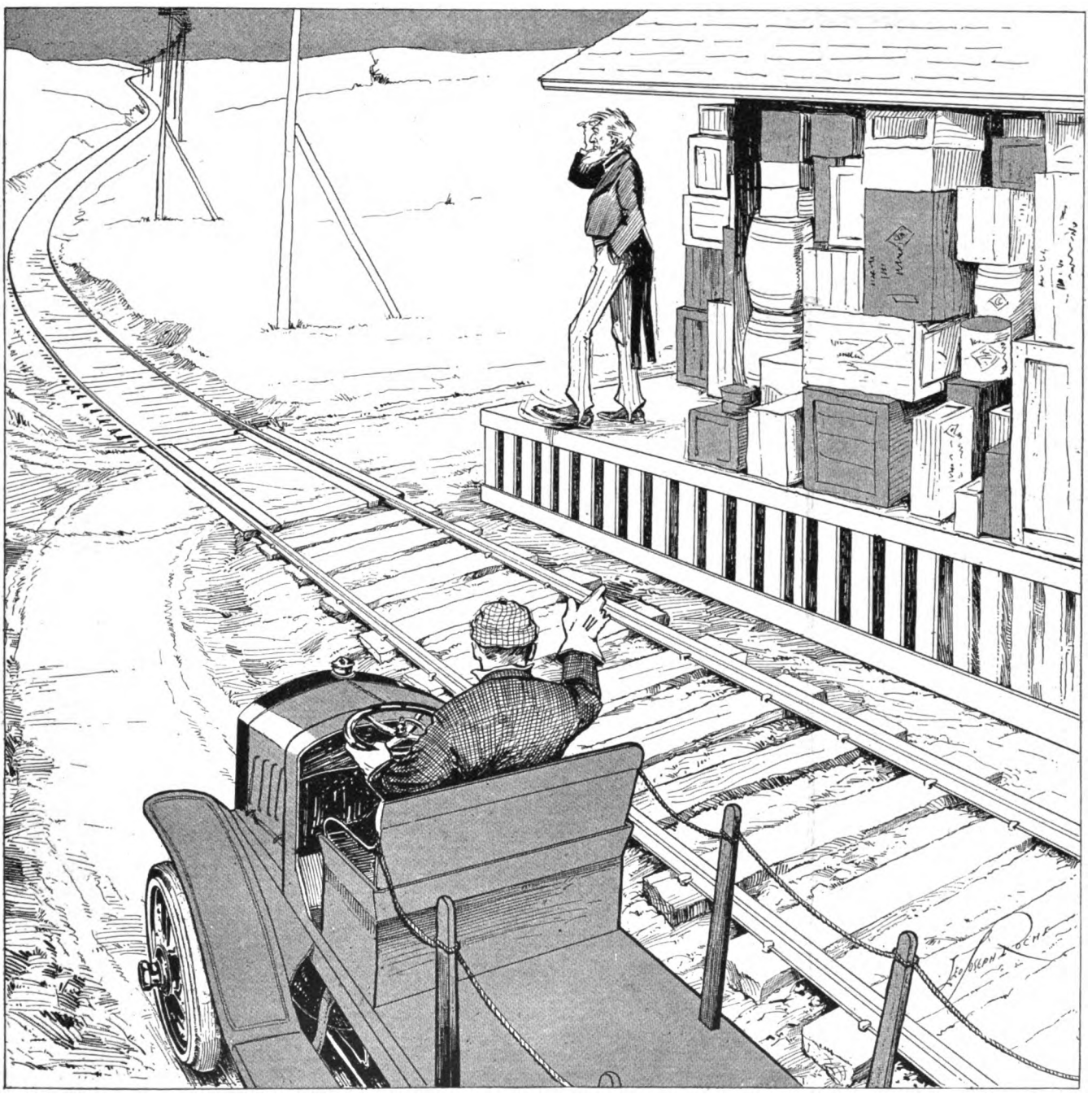
CANADA—UNIVERSAL CAR AGENCY, WINDSOR, ONT.

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV New York, U. S. A., Wednesday, January 30, 1918 No. 5

Let Me Help



Experts say they believe the motor truck can take many of the tangles out of our freight situation. The plan has promise. The overland driving of government trucks has proven successful. There is a big field of possibilities for dealers in developing transportation systems, either by owning trucks themselves or interesting others in the idea

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What You Will You Will Get

Chicago Show Reveals That Dealer's 1918 Business Depends Upon the Dealer—If He Wants It He Can Have It by Simply Going After It

CHICAGO, Jan. 26.—The dealer who wants good business during 1918 can have it—provided he goes after it.

This just about sums up the opinion of the many experts of the industry who are in Chicago to-day for the opening of the 18th Chicago motor car show.

They say there are dealers who to-day are having a good business—simply because the dealers believe good business is possible and are going after it.

And there are other dealers who are having a poor business—simply because the dealers believe good business is impossible and are making no effort to get it.

And this situation, close observers say, will govern probably the whole year of 1918.

One fact illustrates how big a part the dealer's frame of mind plays. It is said that dealers who had a good business last year are going through into the new year with the beginning of good business and the prospect of much more business, and that dealers who had a poor year can see nothing in the future.

Why?

Because the dealer who had good business is full of confidence and determination. He has tasted good business and is determined to have more, whereas the dealer who had a bad run of business is discouraged and is not even making the effort that he could. It is entirely a matter of how the dealers feel about it. If they go after business hard enough they get it.

Wherefore, the one big thought for all dealers now, and the thought that is the theme of every dinner and sales meeting scheduled for show week, is:

BUCK UP! SEE THE SUNSHINE! WORK HARD AND MAKE SOME MONEY!

It is expected that far more dealers will attend the Chicago exposition. They are coming in considerable numbers, according to reports from all quarters, but most of them will not be here until the middle of the week. The principal reason for this delayed arrival is that the show will close Monday because of the fuel administration's order. This means that, aside from the Saturday opening, the show really doesn't begin until Tuesday morning.

There are not so many exhibits of cars or accessories as a year ago. There were 260 exhibits a year ago; this year there are 225.

Compared with the New York show of this season, the number of car makers exhibiting is the same, 79. There were 106 more accessory exhibitors at New York, there being only 146 here, while in New York there were 252.

The usual buildings are used, the Coliseum, Annex, Greer building and Armory, and the same old "Pneumonia Alley" is as cold as ever between the Coliseum and the Armory. There is a cloth roof over it, but it has the appearance and feeling of a straw hat in this wintry weather.

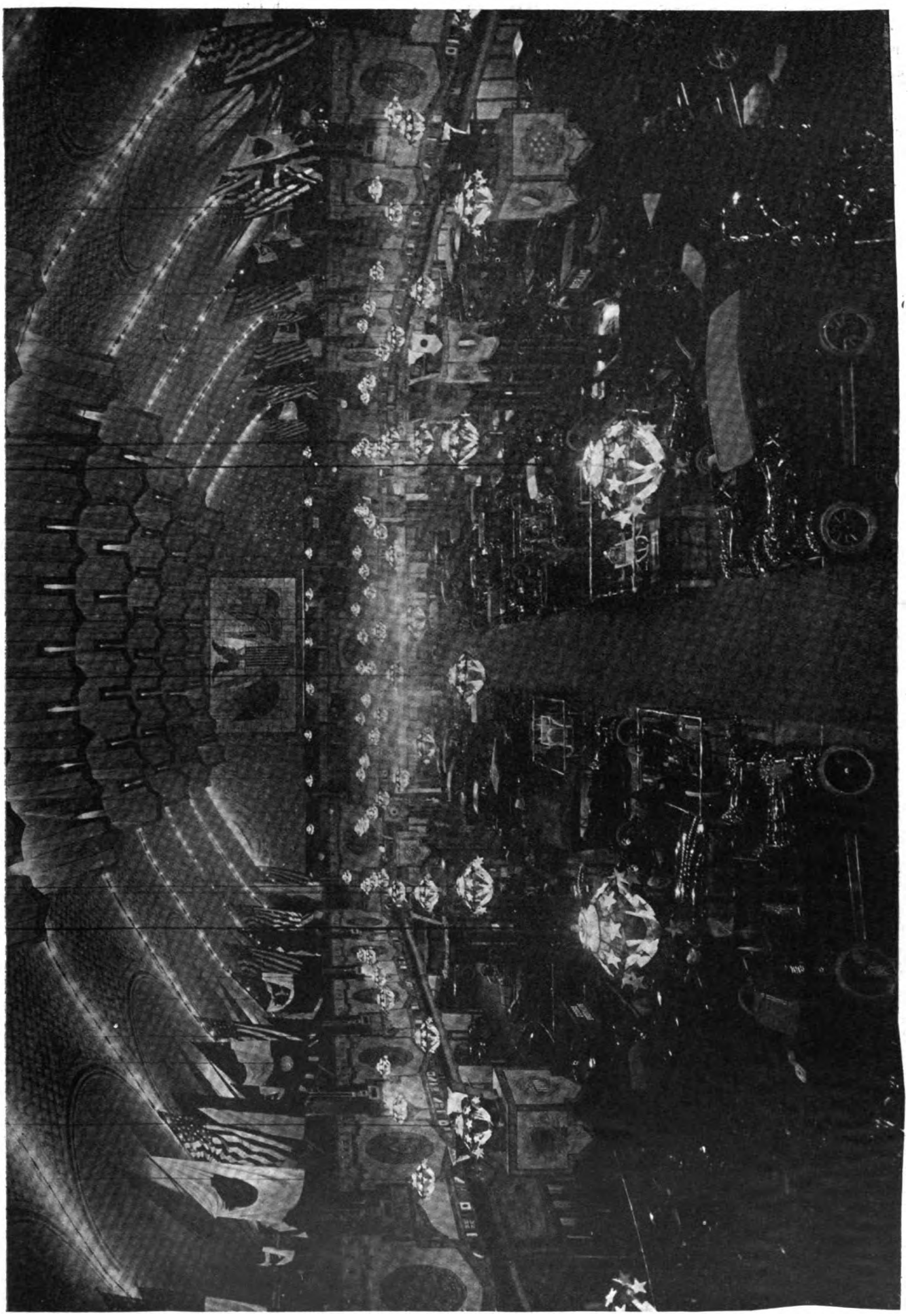
The decorative scheme this year is patriotic. Flags of the allies are worked in, and about the gallery in the Coliseum are the seals of the different states. Spotlights atop the central pillars illuminate the flags.

The exhibits are the same big centers of interest as in other years. Most of the exhibits in the Coliseum contain chassis or motor displays and these are always the point of greatest interest. Looking down from the gallery, one can always detect a knot of people about these mechanical exhibits.

The accessory exhibits appear to better advantage than they did at the New York show. The fence arrangement that is always used at Chicago, and which doesn't seem to have been changed much for several years, sets off the goods well, and there seems to be a better attempt at displaying the goods than was the case in New York.

The opening was under very adverse circumstances. A few days ago Chicago was buried under tons of snow, which is still heaped in great piles along the

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It has been said, and not without reason, be it added, that Sam Miles always saves his best ideas for decorating the Coliseum in Chicago. Judge for yourself. This is what dealers who visited the show saw when the lights were switched on.

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streets. This morning the snow began again, with a high wind, and when the show opened a regular Chicago blizzard was in progress. Despite this the show opened as usual.

Railroad conditions have been very bad and there has been speculation as to whether the exhibitors could reach the show, but about the only bare spot at 2 o'clock was the Velie exhibit and by evening this had cars in it. The old show was there in all its glory on the first day.

This noon the Chicago Automobile Trade Association hit the keynote of the show when it put on a "backbone" luncheon at the Lexington. George M. Graham, commercial manager of the Pierce-Arrow Motor Car Co., Buffalo, told the dealers and their salesmen that "blue funk" and fear of the future would hurt business and that what is needed is strong and active men who will go out and fight for the business that is there if gone after.

After that the dealers went to the opening of the show at 2 o'clock and at 3 o'clock listened to an official opening by Governor Lowden of Illinois.

Many Dealer Dinners

The dinner folks didn't begin to set the dates for their dinners until Wednesday and on that day there are affairs for Cole, Franklin, Oldsmobile, Velie, Dodge, American truck, and Nash, and two for Elgin. Thursday there are: Reo, Paige, Hupmobile and two for Maxwell-Chalmers, the latter staging what is promised to be a unique affair Thursday evening, being theatrical in character. The S. A. E.'s big war dinner is Friday night.

The driving away of cars and other methods of getting them from the factory to the dealer are big topics of discussion. The drive-away is discussed elsewhere in another story.

An illustration of how the dealer must jump into the situation and do unusual things this year is furnished by the action of the Kansas City Oakland manager. A circus wintered at Topeka, Kan., and the Oakland man rented the circus train of 60 flat and box cars until spring. These were repainted with the Oakland name and the train carries 180 Oaklands each trip. It has been from the factory to Kansas City twice and to Chicago once. Oakland also has 35 flat cars that run between the factory and Chicago, and take 500 cars a month to this city. The cars are unloaded outside the city, the train not being permitted to get into the congested yards where it might be tied up.

The South and Southwest is the motor car manufacturer's bonanza right now. Southern crops are good, there is also industry in the South where there never was industry before, and cars are selling rapidly. Texas is said to be crying for cars, and a good delegation from the Lone Star State is said to be due to arrive at the show.

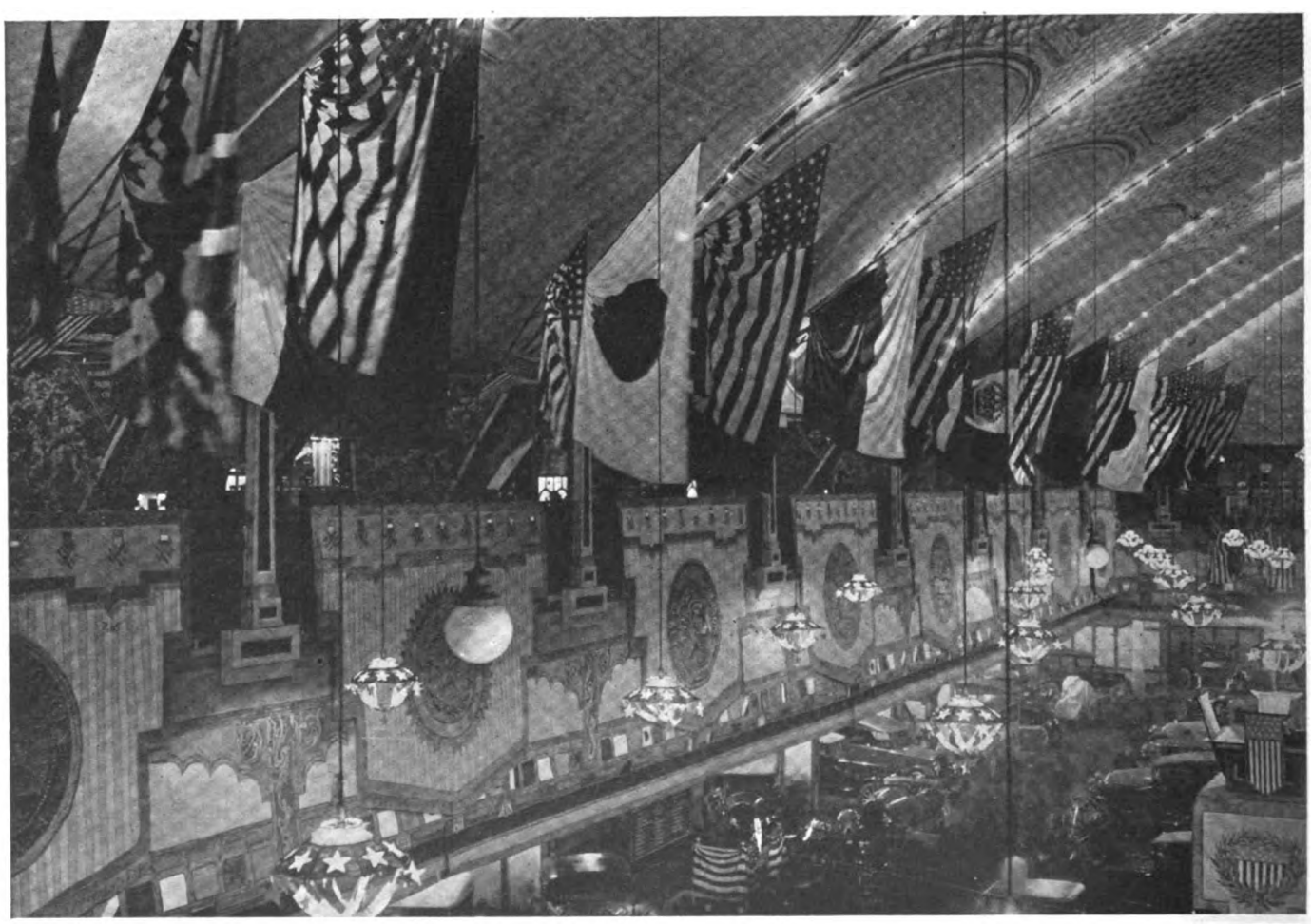
The South is Booming

Illustrating the boom condition of the South: In Crowley, La., a town of 5000, 150 miles west of New Orleans, a dealer contracted for 50 Mitchells for a year. In the 3 months preceding Dec. 15 he sold 80. In Holly Hill, S. C., a small inland town listed with 342 people, the dealer contracted for 50 and sold 100 in four months. Isolated instances of this kind are frequent and the whole general southern business is said to be thriving.

What may happen later is related by one Chicago distributer as his own experience. He said dealers held off some weeks ago and took no cars. They

The Count

	1918	1917
Total Exhibitors	225	260
Car Exhibitors	79	92
Accessory Exhibitors	146	168
Grand Total (cars & chassis)	298	337
Four-cylinder	81	97
Six-cylinder	164	170
Eight-clinder	30	41
Twelve-cylinder	8	18
Steam	2	—
Electric	13	11



If you climbed to the balcony and didn't let your eyes wander too low, this is what the Coliseum decorations looked like. Like it?

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thought there would be a production in excess of sales. Then they found they could sell more cars than they could get. And then they began to worry about how to get cars. This increased their sales spirit and impressed upon them the necessity of getting cars NOW.

He said when spring comes the dealers who have cars will reap a small harvest, while the dealers who haven't secured cars will find themselves up against a healthy demand—with no cars to sell.

The concensus of opinion is that the passing of the heavy snow of this winter and the coming of spring sunshine will sweep away at one brush a big part of the pessimism and mistaken ideas that now possess a large part of the public mind. The man who longs for country air and spring sunshine will realize that he cannot be an efficient man unless he gets it—and out into trade channels will come the money that he mistakenly thought was playing a patriotic part by hiding in an old sock.

The Harry Newman-Stratton Co. is this week staging a truck show in the Newman salesrooms, where the Maxwell truck is shown. Three buses, carrying 30 people each, run from the hotels to the Newman salesroom and to the Coliseum without charge on a 15-minute schedule.

There were a number of new cars at the show, though not so many as there were at the New York exhibit. You will find them illustrated and described on the pages immediately following page 43.—EDITOR.

HAVE YOU SEEN——?

In This Issue

1—HOW TO BUILD A SERVICE CAR

A LONG, hard winter; lots of repair and overhaul work to do; some towing in. You ought to have just such a car as is described on pages 23 to 27. You can build one from an old chassis by following these simple directions and working drawings.

2—HITTING THE STRETCHES

LEE CUSON, Detroit's biggest used car dealer, set out to discover whether his local advertising was bringing him dollars and cents return. What he discovered startled him so much he is reorganizing his whole advertising plan.

3—MOTOR WORLD WINDOW SERVICE

You'd hardly believe how easy it is to set up a real good window.

And Now For NEXT WEEK

How Rochester Dealers Are Selling Themselves

It's one of the best co-operative advertising ideas we have ever seen.

IN LAST WEEK'S ISSUE—JAN. 23

HUGH CHALMERS, Chairman Automobile Industries Committee, who is in close touch with everything in official Washington that affects the dealers throughout the country, made a wonderful talk before a gathering of 400 dealers at Cleveland. Read that address. It is the most instructive as well as the most inspirational thing that has come out of the war. It is a real message for YOU.

FACTORY "drive-aways" were also discussed for your advantage in last week's issue. The subject is of such vital interest to you that you cannot afford to miss the article.

ANOTHER feature in last week's issue had to do with farm tractors and what they will mean to dealers and garagemen in agricultural districts. Read it.

The Leader Must Lead

These Are Strenuous Times, And, As a Wise Man Has Said "You Must Be a Tractor, Not a Trailer."

ONE mid-west distributer who has recently given up his wholesale business because there was no money in it, laid the blame for it on the small town and country dealer, whom he declares the distributer has had to carry in many ways.

The distributer has had to finance the dealer, going to his country bank and arranging for the necessary accommodations on cars. The distributer has then had to introduce better business methods to the country dealer and has had constantly to drive him in the selling job.

It has been a constant push. The situation has been further aggravated by the country banker who is not a good business man and who has tightened up in the last six months and has made it correspondingly harder for the country dealer as well as the distributer who is taking care of this country dealer.

This broadside against the country dealer is unfortunate at this season of the year, and in this war year. The country dealer is the man closest to the farmer and the farmer is the man who is buying the cars.

The farmer is the man who must buy cars during the coming spring. *He cannot do without them.* War or no war, the country dealer must get in line and take care of the business that is going to come in the next few months. This country dealer should be right up on his toes. He cannot possibly as a human being be down in the dumps. If he is down in the dumps, it is imaginary and cannot be real.

Mr. Distributer, it is really up to you to take hold of these country dealers to-day as you have never done

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Again we have to blame Dr. Garfield for failing to publish this picture of the Milwaukee show with the article which appeared last week. It is one of the most beautiful shows held this year and it will take a lot of beating

before. Crack the whip of harder work, or more brain power, over him. Get into his head that he is in a real business and that if the railroads cannot bring the cars to his town they can all be driven overland. Inject a new idea into that dealer. Get into his head the story of the cost of the horse. Here it is in a digested edition:

The day has arrived when the horse is too expensive for the farm. It takes 5 acres of land to keep a horse a year. We cannot afford such luxuries in these war days. We must use those 5 acres to better advantage. Those 5 acres are needed to grow wheat and corn and oats for our Allies in Europe.

It was never intended to use 5 acres of good fertile soil per year for each horse when you can get a car and get the food for it from the bowels of the earth. We have plenty of crude oil. We are to-day making a million gallons of gasoline more than we are using. The Creator never intended to starve men for the sake of feeding horses.

It is our patriotic duty to work the land of the farmer and do his other biddings by means of the crude oil from the depths of the earth and leave the fertile acres to be more intensively cultivated to grow food in greater quantities for human beings.

Instead of it being patriotic for the farmer to work his horse and not buy the car, the real patriot is the farmer who from his 160 acres of land grows more grain and rears more cattle and sheep because he uses motor cars, motor trucks and motor farm tractors.

The greatest patriotism to-day is that which aims for the greatest good to our Allied cause in the war. Take an example:

How About It?

We have been going through a shortage of sugar for months. Suppose all the sugar plantations in Cuba and in our southern states are worked by negroes and mules at a mule pace. That means that a limited cultivation is accomplished.

Convert this nigger and mule equipment into motor tractor and motor-truck equipment and you increase the acreage of sugar; you increase the supply and you furnish more sugar for this country and for Europe and for the world.

It is good patriotism to buy that machinery that speeds up transportation, that speeds up cultivation, that grows more sugar.

The same is true on every farm in this country and in any other country. Hail to the farmer who can plow more with his tractor because he can work it 24 hours in the day and can plow later in the fall and every day in hot July and August!

Let us not brand that farmer with luxury when he buys his motor car, buys his farm tractor and buys his motor truck. That farmer is a patriot. He is one of the new order of patriots—that order imbued with efficiency.

We would not think much of our airplane engineers if they made a poorer engine than Germany, so that the Germans could drive us out of the sky. We would not have much patience with our commanders if they took the slow means of trailing our guns up to the front by mules when we can move them up by creeper tractors.

Who would be content with our army if it set out to do everything on horse schedule, when it must be done on motor schedule. There is no

(Continued on page 43)

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What Cleveland Is Doing

to

1—Get the Crowds
2—Sell More Cars
3—Drive Cars Home

All of Which is Told in This Story About the Cleveland Show

By Ray W. Sherman

CLEVELAND, Jan. 24—The Cleveland show this year is what every other show should be. It is several thousand per cent better from a merchandising standpoint than the show that Cleveland held two years ago. The progress is remarkable.

As was stated last week in Motor World, there are three things of importance at the 1918 shows. They are:

1—Get the crowds.
2—Sell harder.
3—Drive cars from the factories.

All three of these things are being done. Cleveland is getting the crowds. Tuesday night's paid admissions ran ahead of last year. Saturday night was only 9 per cent below last year. It is an even race every night, with the chance that this year's figures may beat last year's. The dealers, however, will be satisfied if there is no decrease.

As for more intensive salesmanship, there are evidences of it throughout the show. The exhibits are good merchandising exhibits. There are rugs, ferns, palms and art lamps everywhere, and it all merges beautifully into the spring-time decorative scheme that was put up by E. W. Campbell, of Boston, who is this year doing several of the shows that are affiliated with the National Association of Automobile Show Managers.

And as to the drive-away proposition, there are dealers in Cleveland who have forgotten what a freight car looks like. The government truck road from Detroit to the eastern seaboard goes through Cleveland, and it is being used by the dealers here. The road is kept open all winter by shovelers, trucks and plows, and dealers are driving cars all the time so they may get in a supply before the snow goes and the roads turn to mush.

I—How Cleveland Got the Crowds

IT does a dealer's heart good to see the aisles of the Cleveland show thronged with the old-time crowds. People are looking, questioning and buying, just the same as in the other years. The dealer who may have been suffering from a wilting spine has been given a powerful object lesson. He is entirely cured of any idea that the public is not interested in cars this year.

The crowd is there, and it was good promotion work as much as anything else that got it there.

This promotion work, under the direction of Show Manager Fred H. Caley, began in ample time before the show date.

Getting Local Publicity

A puzzle contest was run in a Cleveland newspaper, in which cartoons concealed the name of some part of a car. The prizes were $5, $10, $15, $20 and $25—open to children only—and the next fifty winners got free tickets to the show. This stimulated interest.

Then Herbert Buckman, Caley's assistant, made a tour of the Cleveland district and arranged with twenty papers in as many different Ohio small towns for special motor car editions Saturday or Sunday of the beginning of the show.

The show advertised that it would have a tractor display, which is of interest in this section at present. A Cleveland tractor is exhibited during show week on the sidewalk at Ninth Street and Euclid Avenue, in front of a bank.

Slides were shown in fifty moving picture theaters.

Free space was given to an army dental ambulance, and many people have been drawn to the show to see this exhibit. It is the first dental outfit to be accepted by the Government.

How Retail Stores Helped

A change was made in the musical program. There are more singers and fewer musicians, and the crowd each afternoon and evening enjoys thoroughly the vocal entertainment.

The Retail Merchants Board co-operated and twenty big stores used show poster stamps on their stationery for a

Series of Business Boosting Dinners Planned

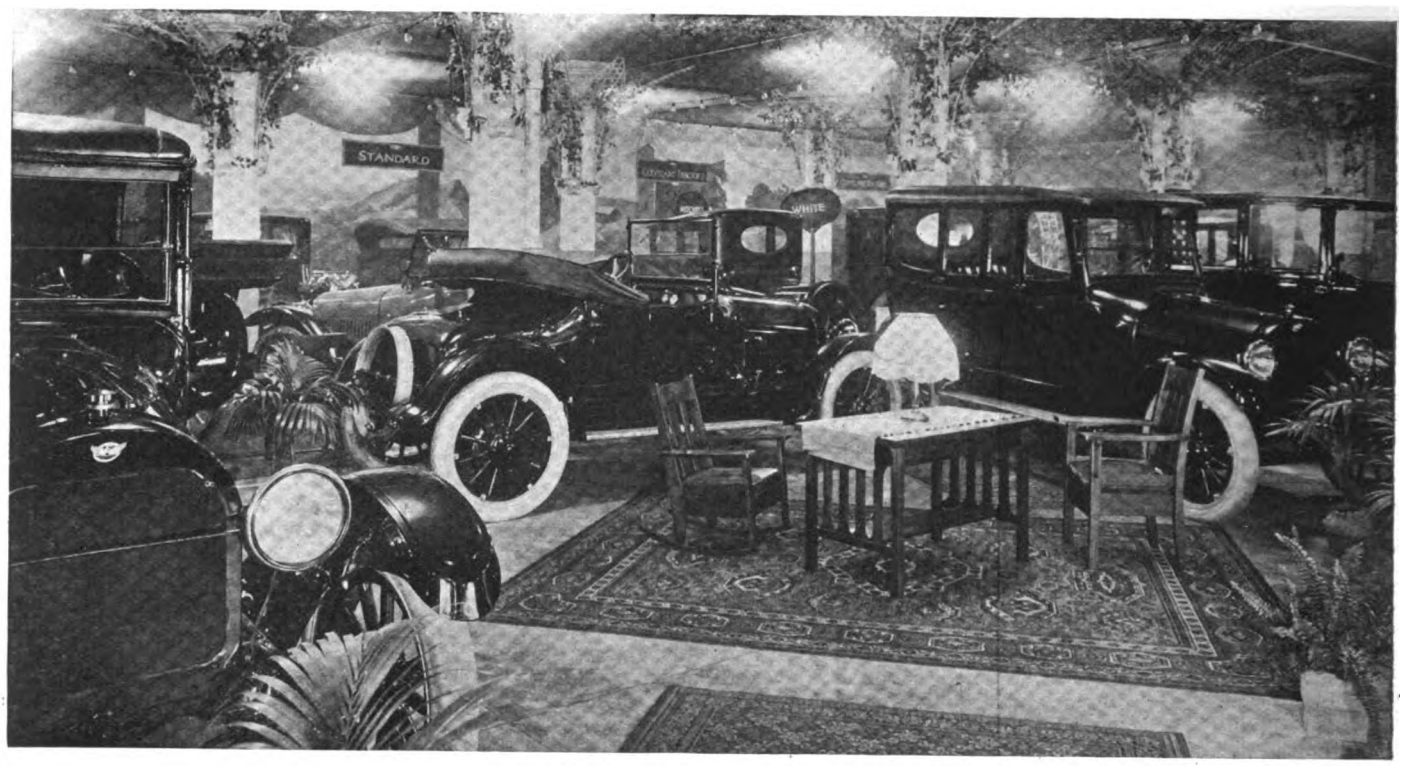
CLEVELAND, Jan. 25.—So successful was the Hugh Chalmers dinner Monday, attended by 500 Ohio dealers, that the Cleveland dealers have planned a series of boost-business meetings, to be attended by the dealers in this territory.

The first one is scheduled for about March 1 and probably will be on a Saturday noon. It is planned to secure one dynamic speaker for each meeting, who can tell the story of why war-times demand good business and why it is every man's duty to have a stiff spine and an active cash register.

The Cleveland dealers have also considered co-operative business-boosting advertising, as a public stimulus.

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Cleveland's Good-Looking Show





THE RIS MOTOR CO.'S Reo exhibit shows how to handle the usual-sized show space. The old-time method is to set another car right in the middle in front—but this dealer didn't. See the effect he got. His business office is behind the car at the left

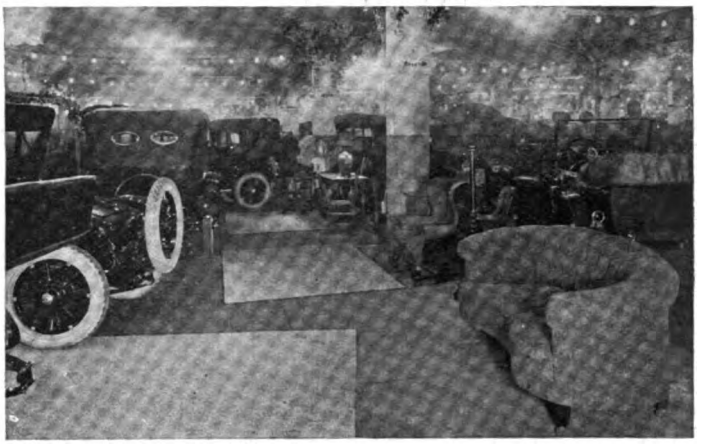
THE BAKER R & L CO. had a big space and didn't crowd it. Plenty of furniture and rugs were used. Directly behind the post between the two cars is a small business office



THE PEERLESS MOTOR CAR CO. had one of the best exhibits. The two lamps show up poorly in the picture and the bouquet on the far table can't be photographically shown in its real colors

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Above — THE CLEVELAND CADILLAC CO. put great merchandising atmosphere into its exhibit. This view is from one end down behind the cars. It might be called the exhibit's inner circle or back yard. It is a fine place to talk business



Right, Above—THE A. L. ENGLANDER MOTOR CO. had lots of room at the back of its Hupmobile exhibit. The business office is under the lamp in the distance. Ordinarily the first car at the left sits farther in toward the soft davenport, having been pushed to the left to permit a better view. When where it belongs it acts as a sort of end door to the exhibit

THE CARRIS-FRANKLIN CO. showed how a small space should be handled. Carris had another exhibit car—but left it out and used the space for atmosphere and visitors. With another car he could have had little of either



THE WHITE CO. had a big space and handled it in a big way. The rug looks the value of some cars and fits well into the White line of goods. There is a chance to view every car to advantage



THE OHIO OLDSMOBILE CO. made its exhibit inviting to the show visitor. And just count over the very few pieces of furniture necessary to get this fine result

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couple of weeks preceding the show. The show always helps the stores.

Thirty or forty of the stores in the downtown section have motor car displays in their windows. These consist generally of a tire or two decked out with ribbons. Kelly-Springfield loaned 47 tires to the stores for this purpose.

Few billboards were used, but every lamp post in the downtown section has a shield sign just below the lamp, advertising the show.

Street cars carried show advertising inside and out.

Every member of the Cleveland Automobile Club, which is closely related to the show company, received two tickets. There are 8000 members.

Every day is a special day. Saturday was opening day. The show runs two Sundays, beginning on Saturday and ending on Sunday, making nine days in all. Monday was dealers' day, and a big dinner of Ohio dealers was held Monday noon at the Hollenden Hotel, where Hugh Chalmers delivered a confidence-building address.

When the dinner was suggested "somebody said that it couldn't be done," but when the hotel counted the dinner tickets there were 427, and it is estimated that nearly 100 more people came in after the meal and heard Chalmers.

A dinner of all the dealers in a show territory is a mighty good idea for every show manager. It helps business, inspires the dealers and helps make the show a success. Manager Caley has sent to all the show managers in the United States a letter telling about this dinner.

Tuesday was Automobile Club Day. Wednesday was Aeronautic Day. One of the newspaper men swears he saw an aviator there, but, anyway, it made good publicity. Thursday—to-day—is Tractor Industry Day. The tractor people had in mind a dinner and a parade with a brass band, but gave up the idea because they could not get machines enough in line to make a worth-while showing.

Drive Cars Away in the Next 6 Weeks

DEALERS:

There seems no prospect of a let-up in the freight situation.

This means that you can expect few cars by freight unless your condition is exceptional.

If you are going to have cars to sell in April, May and June you must get them NOW.

The roads leading out from the Michigan factories are now covered with snow, but they are kept plowed out in several directions..

Cars can be driven away now. It will be far easier now than after the first thaw, about March 1.

DRIVE THEM AWAY NOW.

Read the story on page 16 of how the Ohio dealers are getting cars NOW.

Friday will be S. A. E. Day, in honor of the Cleveland Section of the Society of Automotive Engineers. Saturday will be Good Roads Day, a subject dear to the heart of every Ohioan. Sunday will be closing day.

Some of these days are purely nominal—but they all make good advertising copy, and advertising and publicity get the crowds.

Uniformed Men Free

Any man in his country's uniform paid no admission, and quite a few soldiers wandered in and out at will.

Mats and electros without limit were supplied to the country newspapers. A stock motor car page head was furnished to all that would use it. The motor car sections ran from one to 24 pages in the country papers.

The publicity featured E. W. Campbell of Boston, who was cartooned as "the man who brought spring-time to Cleveland." His decorations have made a hit, and saved the show company several thousand dollars over the prices of other years. The newspapers have given good support.

All of these things are details, but the sum of the details has resulted in a big piece of good show promotion. It has brought the crowd. The management did just what every American should do. It worked a little harder than usual.

II—How Cleveland Made the Show Pay

THE man who buys space in a show and then sits down and watches the crowd file by has bought a gold brick—with very thin plating on the outside.

Above all years, this is the year when the dealer must go into the show as a merchandiser—or else begin now to get the exit sign located so he can go out quietly.

Money spent on a show is generally conceded to be a good investment, but under present conditions the man who isn't more efficient than he was last year isn't playing his part in the game. He isn't doing his bit. This means that the dealer's show work must be more intensive. The dealer must organize himself for getting big value out of the show.

There are good examples in the Cleveland show of how it can be done.

Should Be Show Exhibit

As a starter, a show exhibit should look like a show exhibit and not like a garage scene. The public can see a garage scene for nothing. It pays money to see a show—and should be given its money's worth.

One of the flaws in Cleveland's shows a couple of years ago was the lack of show atmosphere and the crowded condition. This year it has all gone—almost. Before the show the association sent a letter to all exhibitors asking them to slip in a few rugs, palms, ferns, tables and chairs, and to put in an art lamp if possible.

The result is that there is only ONE exhibit that hasn't done something to give show atmosphere—and the car is made in Cleveland. Out of the 32 principal exhibits 31 have rugs; 10 have art lamps; nearly all have floral decorations. Furthermore, nobody has overdone the job. It is a real merchandising show. It has the atmosphere that is the right of the motor car.

Volumes could be written on this feature—but the preceding paragraph tells a bookful.

Making the show look right is the first step. Giving plenty of room is an-

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other. The aisles are necessarily rather narrow in the Cleveland show because the space in the Wigmore Coliseum is entirely inadequate, but the narrow aisles have been compensated for by omitting divisions between exhibits and leaving it so the crowd can go from one exhibit to the other. It works well.

The next step is in handling the show sales work. It is done with varying degrees of merit, but telling how two do it will illustrate. The two are the Neighbors Motor Co., Dodge, with M. L. Bridgman as general manager, and the Ohio Buick Co., with C. W. Hunt vice-president and general sales manager. Both will sell a couple of dozen cars at the show each.

Let us first take up the Neighbors motor plan. When the space is allotted Bridgman maps out the exhibit. The cars are placed in dummy form, the furniture is selected and arranged and a big chart of the space is hung on the sales office wall. A copy is given to each salesman. At the every-morning sales meetings the 16 salesmen are drilled in the location of cars with the result that when the show opens a salesman can stand blindfolded in the space and point at any model.

Drilling the Salesmen

At these sales meetings the men are drilled on "uniformity of sales talk." They are taught that the five chief points are: 1, Appearance; 2, Comfort; 3, Performance; 4, Price; 5, Service. The object is that every man shall tell the same story. If a prospect talks with more than one salesman the Dodge story is always the same—and the selling points are thereby made doubly impressive.

The order of these points is somewhat standardized, but each salesman is instructed to emphasize the points that seem best to fit the prospect.

The salesmen know why certain models are displayed. They are fully prepared beforehand.

They are also given object lessons in how to act and how not to act in a show exhibit. The sales manager is anything but a pretty object as he drapes himself in negative illustration over a runningboard, but the point gets home. The result is that the salesmen are a business-like, straight-backed group of men.

Illustrations are also made on not making too many gestures, being impressive in speaking and letting the prospect sit in the car and appreciate the interior arrangements. A salesman must never leave a prospect no matter who calls. There is a stenographer to answer telephones and operate the prospect files, which are moved to the show for the week.

How Tickets Were Distributed

Before the show 2500 tickets were sent to a selected list. The master file covers live, semi-alive and dead prospects, and if a salesman turns in a prospect at the show the file immediately shows whether the name has been listed previously.

A salesman is protected for 30 days on a prospect. If the salesman doesn't do something with it at least once a month it is any man's prospect. But in "protected" cases the commission goes to the salesman whose prospect it is. This sometimes causes a man to make a sale and lose all the commission—but it averages up about even.

At the show two cars are kept for carrying special prospects to and from their homes. Each car—at the request of prospects—makes 9 or 10 trips a day.

A schedule is made out, showing what hours each man is to be on duty. At least four men are always on duty. The stenographer operates a board on which are the names of the salesmen showing who is "in" and "out." This registry is made by turning over a round tag that hangs on a hook opposite the salesman's name. This board also enables prospects to ask for salesmen whose names the prospects may have forgotten.

And There's a Floor Manager

A floor manager is in charge at all times. His duty is to see that every caller gets attention and to help out in emergencies. He is not expected to play the part of general salesman.

Every morning at 8:30 a meeting is held at the salesroom. Show work is discussed.

One point of emphasis is "get the prospect into the salesroom whenever possible."

A uniformed porter is on duty in the exhibit. He makes himself very useful.

Each salesman wears on his left top coat pocket a felt ribbon in orange and black with the name of the car. This distinguishes him from visitors. The salesmen wear no hats and do not smoke.

As soon as the show is ended the prospects are gone over and a daily work sheet is given each man. This tells him each morning whom he is supposed to call on. As he reports the ticklers are moved ahead and the names appear on future daily work sheets.

This plan gets results from the show, both in sales during the show and sales in the weeks and months that follow.

Buick Has Good Plan

And now let us take up the handling of show work by C. W. Hunt, the Buick sales manager.

As soon as one show is over Hunt opens a "show folder" and in it puts every idea that comes up on the subject.

About two months before the show a hunt is made for a souvenir. This year it is a little cheap top that show visitors have been spinning all week on hotel dinner plates and other convenient places. It bears the Buick name.

Advertising in the newspapers is given a special show tone but little additional space is used.

As to the souvenirs, they are not handed out along the aisle promiscuously. As each man gives a top away he is directed to make an impression upon the recipient. This is done by spinning it on the man's hand, dropping it in his pocket, or performing some other unconventional but not ridiculous act.

Regular Sales Meetings

Sales meetings are held regularly and show topics are treated at show time.

Each man is limited to 100 prospects and he is required to take care of them. No tickets are mailed to the salesmen's prospects, but no limit is placed on the number that is given away.

Each salesman goes out to call on his prospects the week before the show and gives the man tickets, if the prospect wants them. This establishes a personal relation between the prospect and the salesman and refreshes the salesman's mind regarding the prospect. Then, if the prospect attends the show, the salesman is quite sure to know him.

Run on Schedule

Having gotten ready for the show a schedule is arranged and the work begins. A floor manager has charge and sees to it that visitors are not neglected and the salesmen do not spend too long a time in one conversation.

Each salesman is required to turn in complete data on every prospect. He is above all required to turn in some fact that, when seen later on the prospect card, will cause the salesman to remember the prospect. It may enable a salesman, when later calling on the prospect, to impress himself on the prospect by saying: "—— we were talking at the show about whether you preferred a blue or a green body."

This data also covers such facts as who introduced the prospect, whether his wife or daughter was with him, what the daughter's name is, etc. This plan was adopted because it was found that the salesmen often did not know the

Kansas City to Spend $10,000 to Boost Business

CLEVELAND, Jan. 25.—The Kansas City Motor Car Dealers' Association is to spend $10,000 in blanket newspaper advertising between now and the date its show opens, Feb. 9. This advertising will not be show advertising but will center around the essential character of the motor car and the need for good business if the war is to be successful.

The plan was explained here last evening to the directors of the Cleveland association at a dinner given in honor of Kansas City's secretary, who is also president of the National Association of Automobile Show Managers.

Peake said without doubt Kansas City would also hold on Monday of its show a big dealers' business-boosting dinner such as was addressed here Monday by Hugh Chalmers.

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prospects when seen after the first meeting.

A girl is in charge of the telephone and exhibit routine.

In connection with the show work the salesmen this year were instructed to SMILE. They were shown how their optimism and cheerfulness may help the whole motor car industry.

They were also instructed on the advisability of not letting anyone sit too long in a car, and were shown how to make a woman get out of a car without offending her.

After the show the prospects secured are gone after in hot fashion. The work is followed up closely—all of which helps the dealer cash in on his show effort and expense. And the salesmen say they like these ideas because it helps them make more money.

III—How Cleveland Dealers Are Getting Cars

The Drive-Away

ONE Cleveland distributer sells 10 per cent of the output of a big Michigan factory and last year drove half his cars overland. This means that 5 per cent of this factory's output never was inside a freight car. The percentage is, of course, larger because other dealers also drove cars away.

Dealers are said to be driving cars to Florida and all the other Southern States. Some drive to Cincinnati, where the restricted zone ends, and then ship.

From Detroit to Cleveland is the road over which the army trucks come east, and this road is being kept open this winter. The dealers are driving cars over it every day. It is the only way they can get them. Furthermore, the snowy road is passable, but about March 1, when the thaw comes, the Michigan roads will be impassable, wherefore the dealers are driving cars NOW. Other dealers in other sections should take notice. By March 1 cars probably can't be driven out of Michigan. There will be a rest period of nearly two months, and dealers who want cars in the spring must drive them NOW.

C. H. King, of the Buick factory, said Tuesday night at the Ohio-Buick Co.'s dinner that the factory sent one road-breaking crew out Monday and a second crew Tuesday in an effort to keep open the roads out of Flint. He said there seems no prospect of better shipping conditions and that probably nearly all the Michigan cars sold this year will be driven away.

Must Drive Cars Home

Factory production, he stated, depends on the dealers' taking the cars away—and there is no way except the "drive-away." This means that it is up to the dealers how many cars their factories will build. He urged dealers to DRIVE ALL THEY CAN IN THE NEXT SIX WEEKS.

King said he did not believe there would be enough cars this year to supply the demand that would develop this spring. General conditions are above the average.

George G. G. Peckham, the proprietor of the Ohio-Buick Co., said he drove cars until March 7 last year. Sales Manager C. W. Hunt urged dealers to drive all they could, and added that there seemed no doubt that any dealer could easily dispose of any surplus to other dealers.

The Neighbors Motor Co. is driving Dodges regular. Mechanics are paid a flat price of $20 for every car they bring from Detroit, the men paying all road expenses. When not on drive-aways they get regular shop pay.

The men can leave Cleveland one evening by train and be back by the next evening with the cars. Sometimes they arrive as early as 2 p.m. Eight men are regularly engaged in this work. The drive-away cost is $6 to $10 above railroad freight and the added cost is absorbed by the dealer.

What Neighbors Has Done

Neighbors has leased for the winter part of the D & C steamship dock in Detroit and has filled it with 150 cars. Such of those as are not driven away will be shipped by boat when the lake opens.

Small charges for damaged cars are made if the men are proved to be negligent. Damage is, however, infrequent, as the men are picked drivers and know the roads.

Recently a squad of Iowa drivers were unable to go west with cars so were engaged to drive cars from Detroit to Cleveland until the western roads were passable. In 6 weeks Neighbors has driven 150 cars. There was one bad week when there was no driving. Neighbors has 700 cars in Cleveland warehouses.

Last winter Overlands were driven to Cleveland in large numbers. M. L. Bridgman, at that time Overland manager, also found six idle flat cars in an Ohio stone quarry and arranged with the Lake Shore Electric Railroad to carry Overlands. Six carloads were brought in every night at a flat charge of $15 a car. The cars had to be unloaded 7 miles out of town because the loads overhung too much to be brought further into town.

Some of the flat cars carried Knight motors back to Toledo, but generally they went empty.

Shipping by Electrics

There seems to be a big possibility in electric shipment of cars provided the electric roads can arrange some form of transfer. The west is covered with electric lines, some of which run regular sleeping cars. All that is required is a supply of flat cars and some form of work car to do the towing.

I. Van Baalen, of Youngstown, president of the dealers' association in that city, says he has found that the drive-away adds a good sales point. He says some of his prospects request cars that have been driven from the factory, knowing that such cars have been given a thorough test. He said dealers should make this one of their 1918 sales points.

Freight from the east to the west is not so bad as in the opposite direction, which means that dealers here in such eastern cars as the Franklin can get their cars usually by freight.

But dealers in Michigan and Ohio cars are paying little attention to freight. They have stacked up against the traffic obstacle and are meeting it in a truly aggressive automobile way by providing their own transportation.

Business Good in Ohio

CLEVELAND, Jan. 25 — Prospects look good for car sales in Ohio this year. This is a state of many industries and big war orders. Everybody is making money. Mechanics who used to drive used Fords are casting covetous eyes at better cars, and the dealers are looking forward to a good year.

The dealers have had good business during recent months. At the Ohio Buick dinner Leo J. Collier, of the Mahoming Buick Co., Youngstown, was awarded a watch for winning a dealer contest that made the Ohio Buick business in November $17,900 better and in December $12,000 better than in the same months of 1916. January, it is estimated, will be better by 33 1/3 per cent.

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Motor World Window Service



Fashion Camera Studio

How to Trim This Window

In setting up this "Hindview Auto Mirror Display" two frames are used, 20 x 40 in., one on each side. In each frame a sign is suspended from the top, and the back of the frames are covered with crêpe paper. The center unit in the back of the window is done by taking small packing cases and building them up to 5 ft. in height, placing a half round board on top and covering it with crêpe paper, then attaching mirrors on top. Velour is draped from the bottom of the half circle to the floor.

The front unit, showing the mirror for the truck and one for the closed car, with small signs attached, is a small box 6 in. square and 18 in. in height. Two mirrors are attached to the front surface and one in the back. Velour is puffed from the bottom of this unit so as to come out on both sides of the sign. Small booklets are placed here and there along with the bushings and sockets. The booklets are supplied by the Kales Stamping Co., Detroit, maker of the goods.

A small sign at the front of the window, reading "Fits Any Car," $2 to $4.75," is 11 x 14 in. The two signs in frames are 16 x 24 in. The small sign at the center of the window on the half circle is 7 x 16 in., and the small ones reading, "For Truck," "For Closed Car," are 3 in. square.

Velour was used for puffing and draping on the back unit. If velour is not on hand, cheesecloth, sateen or any other material available may be substituted.

If two picture frames are not available frames can be easily made. Cut four pieces of 2 x ⅞ in. pine and nail them together. Crêpe paper makes a good finish.

Send Out These Two Letters

SEND THE FIRST ONE *the Friday before the display is set up and mail the other Monday night of the following week. If you put no handwriting on these, have them all done by a printer and do not seal the envelope, but tuck the flap in, they can be mailed for one cent each.*

Letter No. 1

WHY does a railway train have a brakeman at the rear end? It is to watch out behind and protect the train from rear-end injury.

The brakeman is the eyes in the back of the engineer's head.

When you are driving your car who is your brakeman?

Who protects you when you are about to slow down?

Who watches out for traffic behind when you are about to turn a corner?

Sometimes the man behind sees your extended arm—if he is watchful—but even that precaution is difficult in winter when you are often shut in to keep out the cold.

Why not have a pair of eyes in the back of your head and do your own watching out behind? One look at the right time may save you a lot of money and trouble.

The eyes in the back of the driver's head are the Hindview Auto Mirror. There will be a big display of them in our windows at 8 o'clock Monday morning.

It will be to your advantage to investigate several of these and see which one best suits your car. We have them for open and inclosed cars and for trucks.

Letter No. 2

YOU are about to turn a corner in your car. You "guess" the man behind has seen your signal—provided you can get your arm out—and is going to give you a clear way.

But is he?

If you had eyes in the back of your head you would know just what the man behind was doing. Furthermore, you would know whether there was a man there or not. Sometimes you can't tell whether there is a car back of you.

And if you had these eyes in the back of your head and gave ONE look at the RIGHT time might it not save you a lot of money and trouble?

What would such a pair of eyes be worth?

Would they be worth $1 each?

If they would you may inspect them in our window in the shape of a display of Hindview Auto Mirrors, which, by the way, is one of the best window displays we have had in some time. It was laid out by an expert in New York.

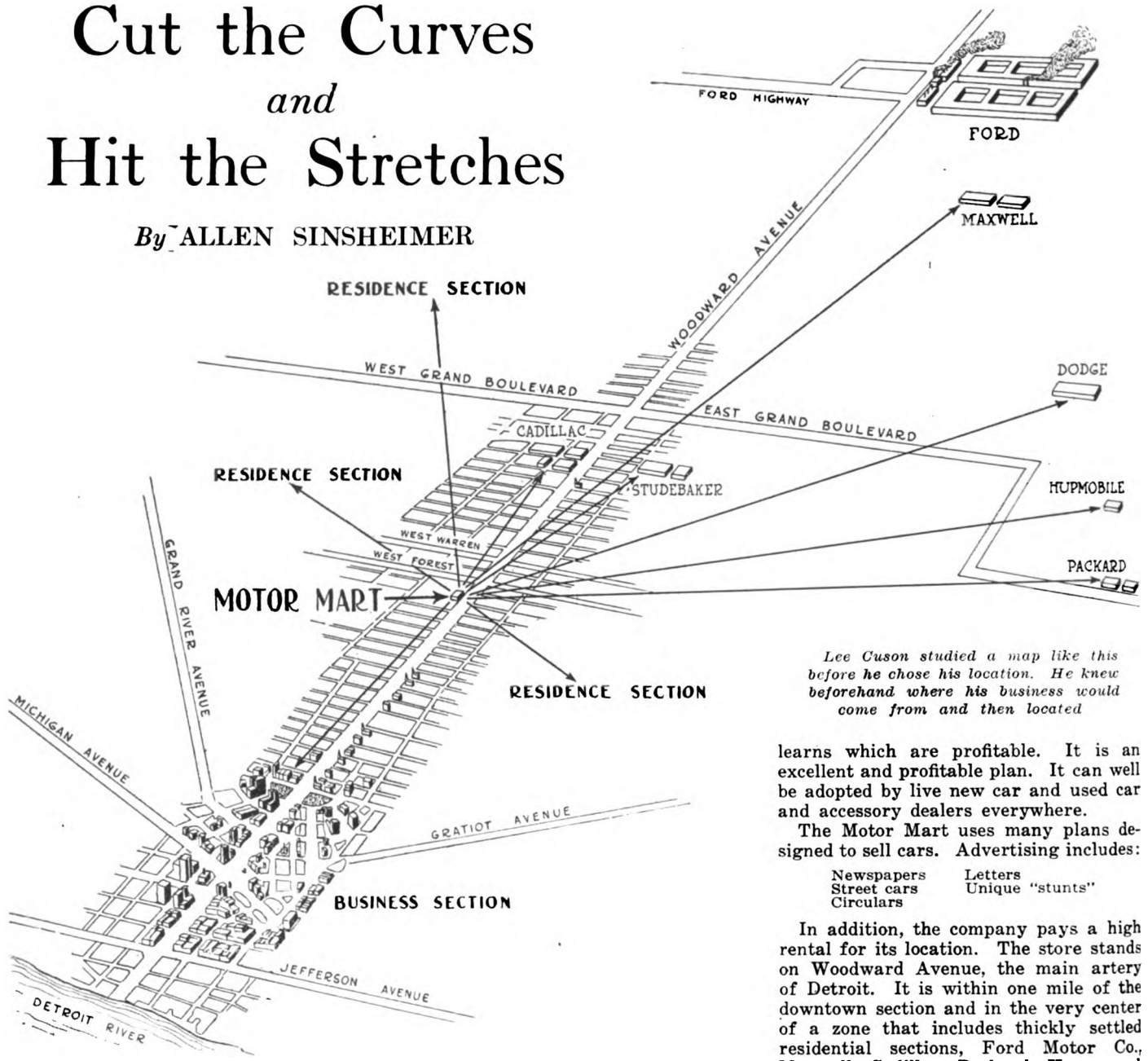
Make sure there is no trouble ahead of you by KNOWING what is behind you.

Come and see this display of "eyes in the back of your head."

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Cut the Curves *and* Hit the Stretches

By ALLEN SINSHEIMER



Lee Cuson studied a map like this before he chose his location. He knew beforehand where his business would come from and then located

THE flag drops—the race is on! See the leader. Look how he cuts the curves. Behold how he hits the inside stretch. Never wasting time or space—conserving every foot and second—he rides to victory.

There, you have the secret of success—in business or in sport. Conservation—no waste. And the dealer who cuts the curves of Foolish Expenditures and hits the inside stretch of Wise Effort also rides to success.

For example—there are dealers who attempt to build huge concerns. They advertise in street cars, newspapers, circulars and other ways. They arrange attractive window displays. They pay large rent for prominent locations. They spend much money in many ways endeavoring to attract the buyers. And when business is good, they attribute the success to their general scheme of business and sit back contentedly—and wastefully.

When business is good there is a reason. It may be all of the things you are doing—and it may be but one or two of your schemes. If it is one or two only, YOU ARE WASTING MONEY on the others—you are not cutting the curves—you are not hitting the stretches. And though you may be successful, you may also be unsuccessful—for no business can stand a drain larger than its profits.

TEST YOUR SALES METHODS. Learn which are profitable—know the assets and the liabilities in your business building efforts. These columns have previously told of the Motor Mart in Detroit where 170 used cars are sold per month. Here, to-day, you read how the Motor Mart tests its sales methods and learns which are profitable. It is an excellent and profitable plan. It can well be adopted by live new car and used car and accessory dealers everywhere.

The Motor Mart uses many plans designed to sell cars. Advertising includes:

Newspapers	Letters
Street cars	Unique "stunts"
Circulars	

In addition, the company pays a high rental for its location. The store stands on Woodward Avenue, the main artery of Detroit. It is within one mile of the downtown section and in the very center of a zone that includes thickly settled residential sections, Ford Motor Co., Maxwell, Cadillac, Packard, Hupp, and many other large plants employing hundreds of thousands of workers.

Two cross-town street car lines operate within two blocks of the store. The downtown shoppers drive by street car and automobile over Woodward Avenue passing the Motor Mart to and from the retail district. Workers in the many plants travel over Woodward and the nearby cross-town lines to and from work, passing the Motor Mart.

Business men, bankers and professional men going to their offices and to their homes pass the Motor Mart. And at night when the north section of the city seeks downtown amusement it passes the Motor Mart. Day and night thousands of people pass this store. Its location is particularly good.

By day Cuson, proprietor of the Motor Mart, places many cars outside of the store next to it, in a large lot he rents for the purpose. By night he employs

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hundreds of small automobile light bulbs over his lot and several powerful electric lights over the front entrance of his store.

In his advertising, he is particularly original. Newspaper advertisements, street car signs and circulars all bear a line of thought that is different. And everyone in Detroit knows the expression "Ask the man in the white hat," which he inaugurated when he placed white hats on his salesmen so they could be distinguished by prospective buyers.

Well—recently Cuson sat down and figured the costs of all of his different sales methods. He totaled the advertising, the sales meetings, the salesmen's salaries and commissions, the rent for his store and all the other details. It made a very comfortable sum—too large, he thought, in some respects. And he has decided to reduce on those that are unprofitable—and to expand and expand on those that pull.

This is how he is determining which are profitable and which are not: On a small printing outfit which he owns and operates in his office he made up many postal cards like the ones shown here.

He mailed these to people who have purchased cars from him in the past year. More than 500 cards were mailed. And 220 returned. Here is the result:

	No.	%
Attracted by display room	102	47
Attracted by newspaper ads	80	35
Attracted by friends' recommendations	22	10
Miscellaneous	16	8

Of the newspaper advertisement attractions which numbered 80 there were:

Attracted by evening paper ads	56
Attracted by morning paper ads	24
Attracted by ads in certain cars	52

All of which proves that:

The best Motor Mart business magnet is the window display and store location.

The second best business magnet is the newspaper advertising, which is always in the classified columns and from 1 inch to 5 inches.

The best newspaper advertising is in the evening.

Advertising in specified cars pulls the buyers.

That many other plans costing much money are not paying for themselves. And as a result Cuson will:

1. Improve his store and window display and lighting effects.
2. Add new rugs and carpeting and repaint.
3. Devote most of his advertising appropriations to evening newspapers.
4. Frequently advertise some one car.
5. Cut his advertising appropriations for morning papers, circulars and other sales methods to a minimum.

It is a good plan. Other dealers can easily follow the idea, sending cards to their customers and learning just what they do that makes good business. And they can cut the cost of the unnecessary plans—and EXPAND and EXPEND ON THOSE THAT ARE WORTH WHILE. That will be cutting the curves of foolish expenditures and hitting the stretches of wise effort.

Remember always that there are others in every race besides the winner—there are also the losers—those who do not cut the curves and hit the inside stretches. And it is up to the dealer whether he will be a winner or a loser—he alone can decide—he alone can DETERMINE to drive to victory.

F. E. Maisonville, Adv. Mgr.,
The Motor Mart.
851 Woodward Ave.
Detroit, Mich.

Dear Mr. Maisonville:-
I take pleasure in sending the following information;
I came to the Motor Mart through—
(a) Newspaper advertising
(b) Acquaintance with a salesman
(c) Acquaintance with an employee, not a salesman
(d) On recommendation of friends
(e) Because I had previously purchased from you.
(f) By passing your display room.
I first read your Used Car advertising in the—
(a) Detroit News
(b) Detroit Free Press
(c) Detroit Journal
I purchased my car from the Motor Mart because of—
(a) Confidence in the house
(b) I was attracted by a specific car advertised
(c) Further remarks.
Yours very truly.

This is the kind of card Cuson sent out to his customers to find out how effective his advertising was

Minneapolis Tire Dealers to Train Vulcanizers for Army

MINNEAPOLIS, Jan. 25—Plans for training vulcanizers free for the Government were endorsed by the Minneapolis Tire Dealers' Association at its annual meeting. The association will train 20 to 25 men at a time, or three classes of six weeks each until May 15, and after that date classes of 15 men each.

A general course is to be decided on. The men will be distributed among the various tire shops, each shop forman to be responsible for the training to a general committee. The committee will make personal inspection of the men at work once a week and will also have a joint session once a week with oral or written examination in co-operation with M. R. Bass of the Dunwoody Institute.

"Our association hopes other trades will become interested in similar patriotic work," said Secretary-Treasurer H. F. Lundberg. Constitution and by-laws were adopted at the meeting. The other officers elected are: President, Fred Weil, and vice-president, W. D. Scott.

Changes in Minneapolis Row

MINNEAPOLIS, Jan. 25—Mid-winter changes are being made in the industry. The Oneida Motor Truck Co. of Minnesota has been incorporated at $10,000 to handle products of the Oneida Motor Truck Co., Green Bay, Wis. Headquarters are at 1626 Harmon Place, Minneapolis. F. E. Burral is president, L. P. Fortin is vice-president, and J. P. Neugent is secretary-treasurer. All are of Green Bay, as well as S. H. Cady, one of the incorporators.

The Minnehaha Oil Co., Hopkins, a suburb, is incorporated at $40,000. There are several Minneapolis stockholders. Henry Perbix of Hopkins is president, Dr. James Blake of Hopkins is vice-president, and E. D. Stowe of Minneapolis is secretary-treasurer.

H. S. Christian's Ford agency and station has removed to a new building at 1417 Hennepin Avenue.

The Yellow Cab Co. has opened a new office and waiting station at 921 Hennepin Avenue.

H. J. Mich & Co., distributing the Lexington, have moved to the former Maxwell retail quarters at 909 Hennepin Avenue.

Stewart to Make Wire Wheels for Government Airplanes

INDIANAPOLIS, IND., Jan. 25—The Stewart Wire Wheel Corporation of Frankfort, Ind., has signed a Government contract to manufacture 4500 wire wheels for aeroplanes. Approximately $45,000 is involved in the order. The company expects to devote all of its time to Government work until the contract is filled.

Quincy Dealers Put Business on Cash Basis

QUINCY, ILL., Jan. 25—All the dealers, garages and electric service stations have signed an agreement to put all supply and repair business on a cash basis. They are notifying the public of the agreement by using large space in the local newspapers. Repair prices are lower in this city than in many of the surrounding towns and the move is made to enable the dealers to do away with accounting, collecting bad accounts, cost of money to carry accounts and other items

The automobile show at the Armory has been postponed to Feb. 20 to 23. Practically all the space in the big building has been taken and the main reason for postponing the show was the inability of some of the big companies to get their exhibits here on time. A musical program will be held in connection with the show, and B. L. Bartlett, the show manager, is making preparations for a record-breaking attendance, as this is the first show held in this territory for several years.

Matlack Now with Globe

NEW YORK, Jan. 25—J. C. Matlack, who recently resigned as secretary and general manager of the Ajax Rubber Co., has become president and general manager of the Globe Rubber Tire Mfg. Co., 1851 Broadway.

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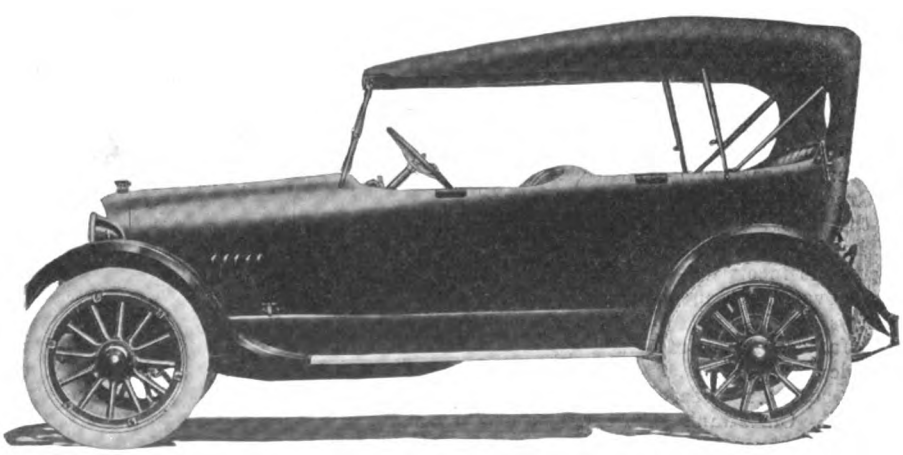
Reo Four Changes Include New Body

Wheelbase and Price Increased—A Few Refinements Made in Engineering Details

NEW YORK, Jan. 21—Along with a new body and a new price, the Reo Four has a few refinements in engineering detail. The chassis has been increased in wheelbase by 5 in. and the Hotchkiss drive adopted. The former model had a torque tube drive, but this has now been abandoned in favor of the Hotchkiss arrangement with underslung semi-elliptic rear springs. There is also a new irreversible steering gear.

The new wheelbase is 120 in. as against 115. To take care of this the structure has been stiffened throughout and in addition the crankshaft has been increased ⅛ in. in diameter and is fitted with counterweights. Other than this the engine remains the same and the remainder of the driving units are also unchanged.

A price increase of $240 has been made, the price since Jan. 1 being $1,225. The increase, however, is not merely on account of manufacturing conditions, but is largely due to the fact that the car is larger, roomier and has a much better and finer appearing body. The body has now a center cowl effect, sloping windshield, an improved top with only two bows and a modified gypsy rear, steering column control, rear gasoline tank, instead of under-seat type.



The four-cylinder Reo has a newly designed body which is somewhat lower, due to the use of a new rear spring suspension

Hupp Has Good Foreign Sales

DETROIT, Jan. 21—The Hupp Motor Car Co. reports exceptionally good export demand from the Latin countries. It is stated that at present the active demand from South Africa would take 100 cars on immediate order and a factory man has been recently taken by the South African dealer to install a service and sales system. The demand from South America and Porto Rico is also good.

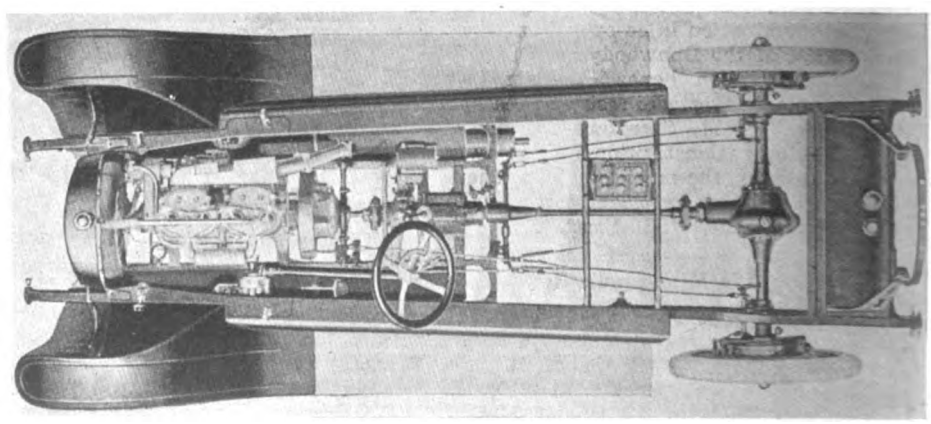
At present the production is behind the demand and over 100 Hupmobile dealers in the states have not seen the new series R car. The production on this car is rapidly speeding up and at present about 65 cars per day are being manufactured. It is reported on reliable authority that the Hupp Motor Car Co. is working on special work for the Government.

Air Inspectors Have Club

DETROIT, Jan. 21—The Detroit Aircraft Inspectors Club, composed of the engineers who construct and inspect airplanes in this city, has been organized for more complete co-operation in the work of the members. Captain James Haeslett, who has charge of the government aircraft equipment division in the city, and Captain Hotchkiss, of the Washington division of aircraft equipment, addressed the members at their first meeting. The officers elected follow: Lieutenant E. T. Jones, president; George Gray, vice-president; A. T. Davidson, secretary-treasurer. Monthly meetings are scheduled. It is stated that the first of the Detroit-built war planes was successfully demonstrated during the past week.

Wisconsin Ford Dealers Organize

APPLETON, WIS., Jan. 21—Ford dealers of northeastern Wisconsin organized the Fox River Ford Dealers' Association at a meeting held in Appleton, Wis. W. C. Dicke, Manitowoc, Wis., was elected president and H. M. Bradford, Appleton, secretary and treasurer.



The Reo chassis has been slightly altered and is 5 in. longer. The torque tube has been eliminated

Argentine Industry Strengthened by War

More Motor Apparatus Needed to Make Up for Farm Labor Shortage

BUENOS AIRES, ARGENTINA, Nov. 20—With Argentine crops expected to establish a new record for the coming summer, mid-summer here being January, the sale of automobiles to the Argentine farmer should show a great increase over previous years. The farmer still continues the great center of sales in Argentina, although in the streets of Buenos Aires the number of American cars is increasing. The war has strengthened the motor car industry in Argentina, due to the shortage of farm labor and the consequent necessity for motor apparatus to take up this shortage.

During the months of October and November, and during the winter months of June, July and August, the sale of automobiles was slow and in many places entirely stagnant, due to general unrest, as well as the series of railroad and other strikes, which greatly interfered with the business of the country.

An example of how American methods of merchandising automobiles in Argentina is taking hold was evidenced by the convention of Overland dealers, which was held at the Plaza Hotel here. It was the first South American Overland convention and demonstrated that the value of such conventions exists in South America as well as in North America. Two or three of the other leading automobile concerns in North America, who have strong organizations in Argentina, have held similar conventions. The spirit of co-operating in automobile sales has taken hold of South America. This was indicated by the fact that from Uruguay came a delegation of five Overland dealers to attend the Buenos Aires convention which was held on Nov. 19 and 20.

In addition to holding the convention proper at the Plaza Hotel, the dealers made a trip by motor from the Overland agency owned by P. A. Hardcastle to the Tigre, which is a summer outing place a few miles from Buenos Aires.

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First Argentina Convention of Overland Dealers

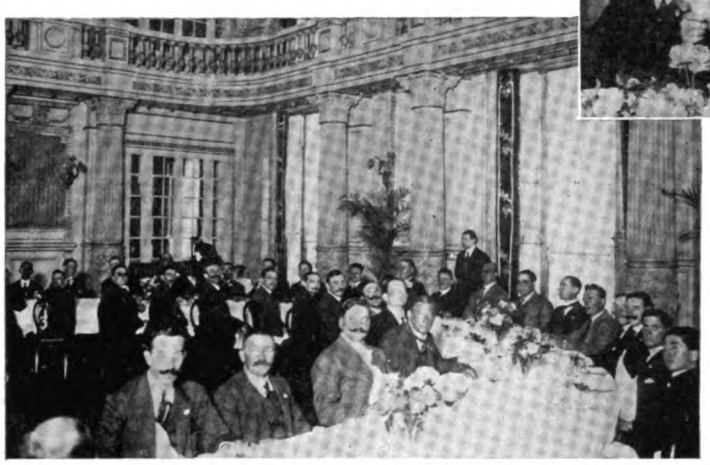


In the background is the Overland agency in Buenos Aires. The line-up shows the start of the party for the Tigre, a famous outing place

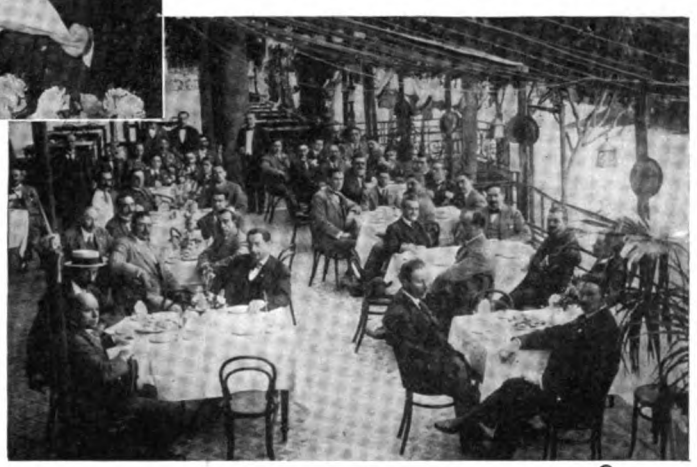


This is the party after arrival at the Tigre. The insert shows P. A. Hardcastle (left) and E. Rochette (right)





The convention was held at the Plaza Hotel, Buenos Aires, and this view shows the Overland dealers gathered for lunch, Nov. 19, 1917



This is the same group of dealers seated for "tea" at the Tigre Hotel, which is one of the fashionable and famous outing places



Here is a group of the delegates to the convention, which was spread over two days, Nov. 19-20, the first of its kind



These gentlemen are the Uruguayan delegation to the Overland convention, who came many miles by motor car to attend

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

Who Gets Commission?

Editor Motor World: In 1916 we contracted with another dealer in our territory to handle Hudson cars through us, giving him exclusive selling rights in a designated section of our territory only. At the end of the year we found it desirable to cancel this contract. This dealer, at the time we cancelled contract, had one new Hudson in stock which he has since sold outside, not only his own territory but also my territory. We have in consequence been compelled to pay a 10 per cent encroachment commission to the dealer in whose territory this car was sold but have been unable to collect this from our subdealer. Did this obligation to sell Hudson cars only in a certain prescribed territory become void when we cancelled his contract? We stand a direct loss of 10 per cent in this instance through no fault of our own and would appreciate your advice as to whether or not we stand any chance through law of making the offending dealer pay.—C. R. T., Boonton, N. J.

Answer—It is, of course, impossible to satisfactorily answer a question of this kind when one is unfamiliar with the contract between agent and manufacturer and the contract between agent and subdealer.

Your rights all depend on your contract. If it is properly drawn the subdealer will be liable for your loss. If the question of his selling cars after concellation is ignored in the contract, you will practically have to stand the loss yourself. Demand that he compensate you for the loss caused by him and if he refuses take all your contracts, correspondence, etc., to your local counsel and have him advise you regarding the desirability of suit.

Up to Distributer

Editor Motor World: I sold a new car which made a little noise in the rear end. It kept getting worse and he did not like it on a new car; neither did I, so I told him if he would drive to the distributing station, where I get my cars and have a contract, they would repair and fix it up for him. I furnished the gas for him to drive the car to this station—about 66 miles. They told him that the gears in the differential were not the right gears. They put in a new drive gear and drive pinion and sent me a bill for $17.22 for these parts and labor on the car. What I would like to know is, do I have to stand for this or not? Can I help it if the wrong gears were put in the car? I once before had a car with the same trouble and wrote the distributing station as to what they would do about it. They told me that they would fix it free of charge but I sold the car to another dealer and he had it fixed.—Lorenze Auto Co., Britt, Iowa.

Answer—It certainly would be poor business policy on the part of the distributer to charge you for the gears under these circumstances.

If you still have the letter in which they offered to remedy this kind of trouble without cost to you, it might be valuable as evidence of what obligation they were under to make repairs without charges. Was there no agreement or conversation at the time you delivered the car to them for repairs? If there was none and you no longer have the letter, your contract will govern your relation with the distributer, and any clauses relating to defective parts will, of course, be binding on both parties.

Write and make your position clear to the distributer before you think of paying the bill. The amount involved is considered too small usually to make it worth while to institute suit.

When Legislatures Convene

During the year 1918 the legislatures of the various States will convene as follows:

Georgia	June 27
Kentucky	January
Louisiana	May
Maryland	January
Massachusetts	January 3
Mississippi	January
New Jersey	January 9
New York	January 3
Rhode Island	January 2
South Carolina	January 9
Virginia	January

I shall be glad to hear from individual dealers or trade associations in any of these States that are desirous of submitting a new garageman's lien law, and I will be glad to aid and assist them in every way possible.

Sending Goods C. O. D.

Although ordinarily when a dealer sells goods C.O.D. he is responsible if they are lost or stolen before being delivered to his customer because he owns the goods until they are delivered and paid for, there is no such liability on his part if the customer pays for them in advance and directs that they be shipped to him by express. In a case of this kind the loss falls on the buyer because he is the owner of the goods as soon as they are delivered to the express company and the dealer naturally does not have to refund the money or replace the goods, as it is up to the customer to seek satisfaction from the express company.

Frozen Cars

Editor Motor World: If a car is frozen while being stored in a garage must the garage keeper make good? I do not believe he must take the water out of the radiators of cars stored with him or put alcohol or anti-freeze in them. Will you explain when a garageman is responsible?—J. V. B., New York, N. Y.

Answer—If an unheated garage were furnished per agreement the garageman, of course, would not be responsible for a frozen radiator on a customer's car.

Where he agrees to furnish a heated garage, however, he may be responsible unless he can show he made an honest earnest effort to procure coal and could not get it.

If the freezing were caused by something beyond the garageman's control after he has taken all proper precaution he is not responsible.

I should say that a garageman is not under a duty to put alcohol or anti-freeze in a radiator or to drain the water off, as there might be a non-freezing solution in the car. Then, too, in order to properly drain the radiator, he would have to start the engine—something he has no authority to do.

Lien Law Question

Editor Motor World: Please advise me if the Garage Lien Law would have any effect on a bill that was due before the Lien law went into effect.—Green Valley Garage, Green Valley, Ill.

Answer—The new Illinois Lien law was approved June 21, 1917. When a law is passed it will not be considered retroactive, that is to refer back to the time before it was passed, unless that fact is expressly set out. There is no such provision in the new Illinois Lien law and so far as I can see only liens arising on the storage, repair or furnishing of materials since June 21, 1917, will be covered and included in the new act.

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A Department of

BETTER MECHANICS

No. 54

How to Build a Service Car

By S. T. Williams

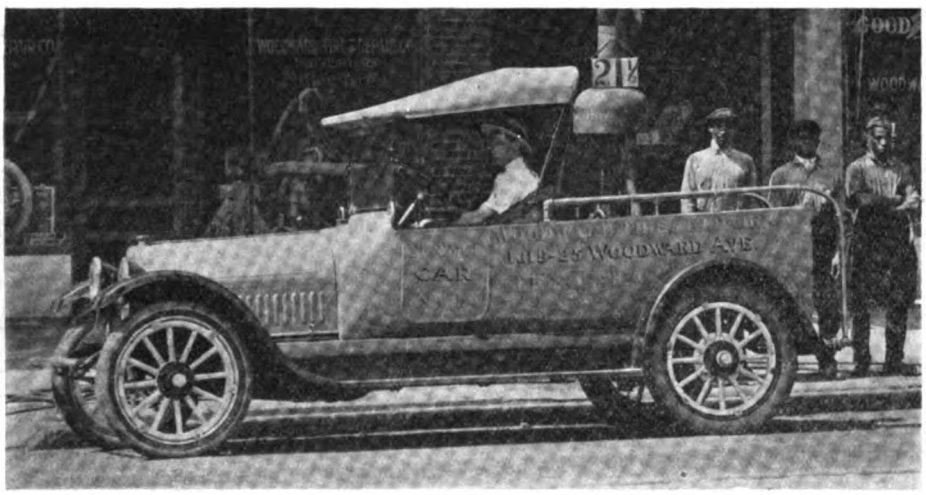
A SERVICE car bears the same relation to the service station as does an ambulance to a hospital. It must carry parts and equipment sufficient to render first aid to any disabled car, enabling it to come home under its own power; or if this is impossible, means must be provided to tow the disabled car to the service station.

In addition to the ability to give actual roadside service, the service car should be distinctive. It is the traveling representative of the service station, and should impress upon the public that quick, clean and efficient service is given. Hence the service car must be designed to meet two requirements—first, utility, and second, attractive appearance.

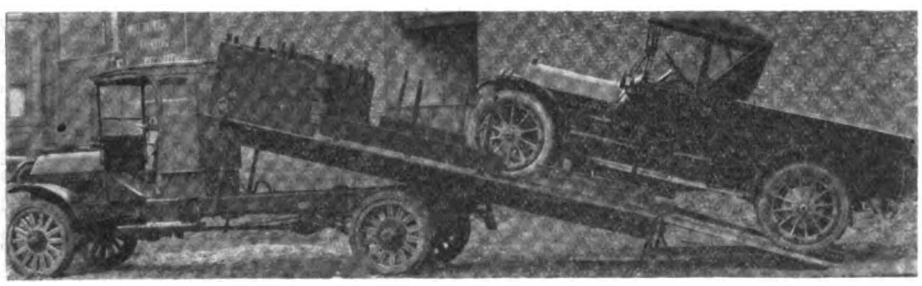
A police patrol type body seems best to meet these requirements. It may readily be built on any passenger car chassis back of the driver's seat; is distinctive, and offers a large carrying capacity both for tools or workmen.

In Fig. 1 a side view of a representative body of this type is shown. In Fig. 2 are the detail drawings of this body. Any dealer can construct a body of this type by substituting the dimensions from the table for the lettered dimensions of Fig. 2. Though the dimensions for all cars are not given—this being obviously impossible—the approximate dimensions may be obtained by choosing the one having the nearest wheelbase.

Several points are brought out in Fig. 2. Two fire extinguishers are attached at the front of the driver's seat. In this position they may be readily obtained, and are less liable to be stolen. At each side of the body, just behind the driver's seat and at the rear are trouble lamp extension plugs. These permit extensions to be taken directly to the disabled car.



Here is a typical service wagon which is good looking as well as serviceable. It is operated by the Woodward Tire & Repair Co., Detroit



The Cadillac Automobile Co. of Illinois, Chicago, has built a service truck that permits a wrecked car to be carried bodily back to the service station. This truck was built in the service station of the company. The feature of the truck is the tilting platform, which may be dropped, forming an inclined plane permitting the wrecked car to be loaded. The platform is 16 ft. long, 7 ft. wide, and is hand-operated, a gear and rachet permitting it to be locked in any desired position. The power windlass is driven from the engine shaft through a 26 to 1 worm gear and then through a train of spur gears, giving a ratio of 76 to 1

Spot Lamps Are Serviceable

In addition to the usual spot lamp, many service cars are fitted with four additional spot lamps. These are attached to the guard rails just above the trouble lamp plugs. These permit the disabled car to be practically flooded with light.

The subdivision of the seat compartments and the location of the tools is indicated. It will be noted that tire tools have one compartment, extra tubes, and patches, another, and carbureter parts another, and electrical parts another. This is essential, as the service mechanic should be able to get the required tools and repair parts for the trouble in question without disturbing any other tools or parts.

The more general repair tools, such as hammers, wrenches, screwdrivers, in fact all the standard tools common to all jobs, should be carried in a tool bag. This

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Working Drawings for Building

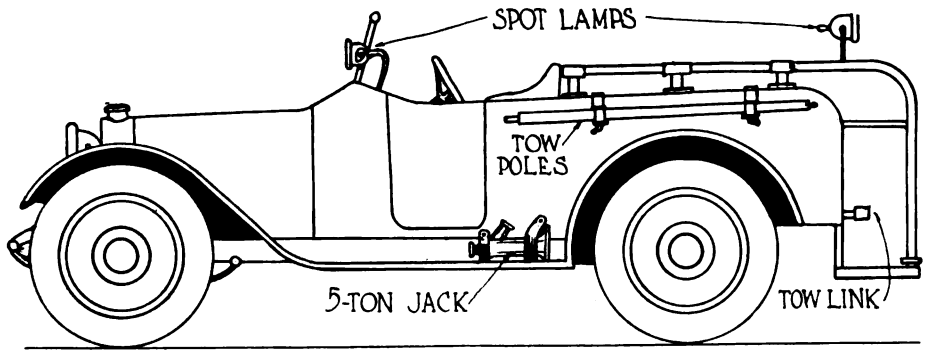


Fig. 1 (Above)—After studying hundreds of service cars in dozens of the largest cities and many smaller ones, Motor World believes that a design of this general kind is best. Note particularly the method of carrying the towing pole, the jack mounting on the runningboard and the location of the several spot lamps

THERE is nothing particularly difficult about building this MOTOR WORLD *service wagon. It can be built on almost any old chassis and there are lots of them that can be picked up cheap on the market.*

One very important point to bear in mind is that the service wagon must be attractive in appearance—clean, well-painted, and it must run smoothly and quietly.

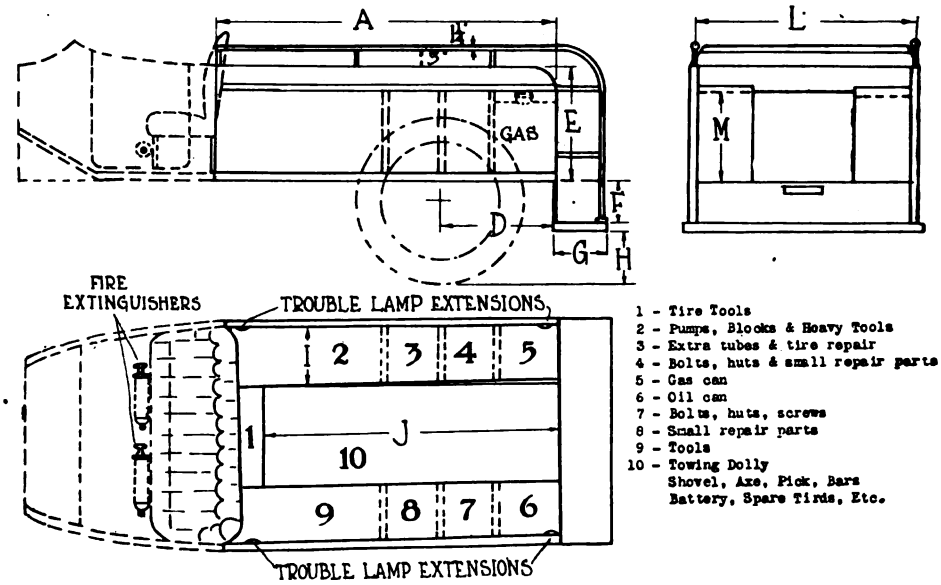


Fig. 2 (Right)—Here is a detail drawing of the body shown above. The lettered dimensions on the drawing are given in the table on the opposite page; the figures refer to the location of the various tools and accessories

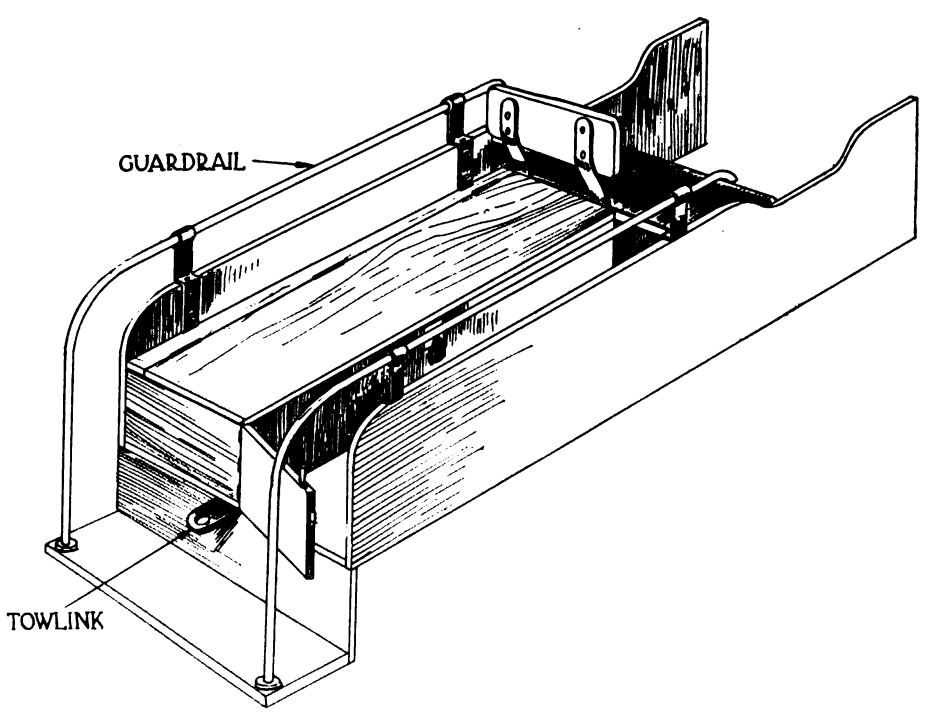


Fig. 3—An alternative type of body, built especially for very light chassis, often is desirable, in which case the arrangement can be made something like this. This is a body that is used quite successfully by the Chevrolet company in Detroit. There is an almost endless variety of arrangements, and in laying out a car a shop foreman should be guided by the particular class of work he expects to be called upon to do

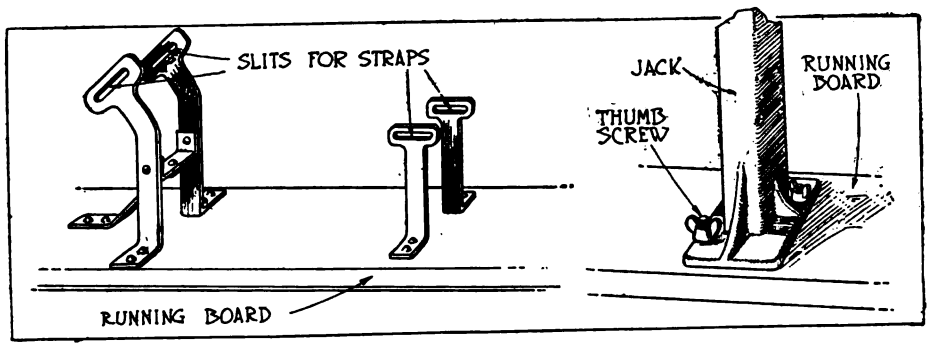
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the Motor World Service Wagon

Prospective customers are prone to judge of the quality of workmanship they are likely to get from a shop by the appearance of the service car.

Have your car the best looking one in the city. Don't spare any pains to have it absolutely right in every particular.

It will be one of the best investments you can make.



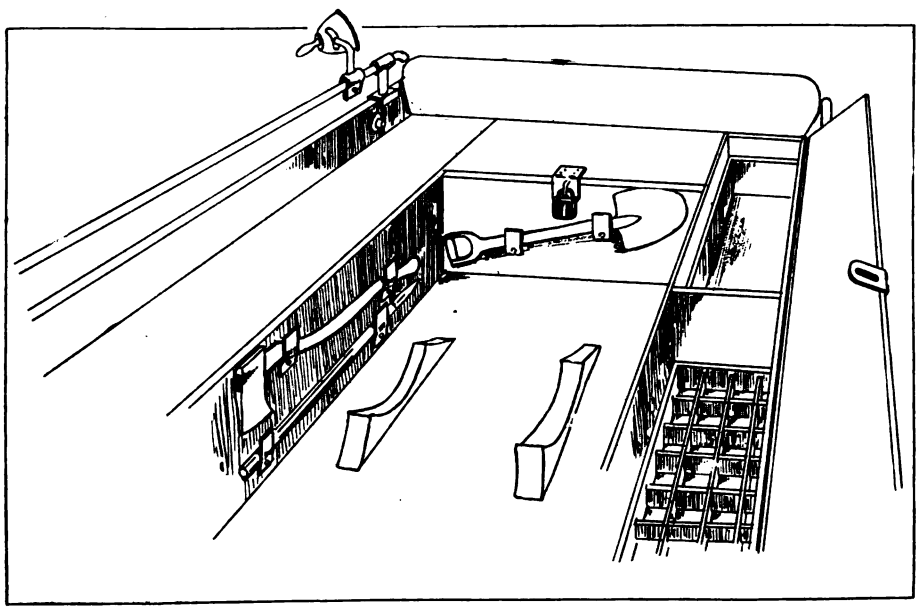


Fig. 5 (Above)—This is a detail drawing of the jack mounting shown on the service car illustrated in Fig. 1. In this case 5-ton jacks are carried, though any size can be substituted. Get them big enough to care for the heaviest work to be done and they will also serve for light work

Fig. 6 (Right above)—The service jacks can be carried bolted to the runningboard, like this, thumbscrews being used for quick action

Fig. 4 (Left)—This is a view of the interior of the service car shown in Fig. 1. Note the chocks and the neat arrangement of the tools, the seat at the right not being shown, so that the compartments are visible

Table of Service Car Body Dimensions

As Taken From Representative Detroit Service Cars

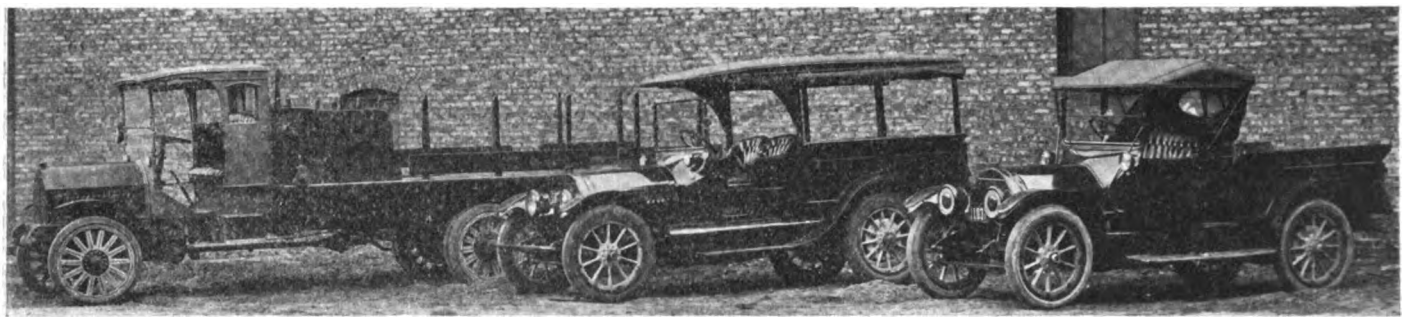
Car	Model	A	D	E	F	G	H	I	J	L	M
Hudson	4–37	70	39½	20	14	12	15	12	70	43½	18
Cadillac	53	84	28	23	12	12	19	14	53	55	15
Studebaker	4–58	58	25½	25	8	10	18	12½	55	45	11
Ford	T	48-up	O-up	15¾	..	..	..	..	48	34	15¾
Chevrolet	4–90	55	29	16	8	9	..	13*	43	32	13½
Dodge	...	60	35	19	11	8	16	12	43	47	17
Chalmers	5–15	68	31	24½	10	11	12	10	48	45	20
Hupmobile	32	47	23	15	9	5	..	..	50	41	13
Paige	6–46	68	30	22	10	10	..	12	52	54	12

(*—seat on one side only.)

All dimensions in inches.

This table of dimensions, which is to go with the drawing Fig. 1, has been compiled after a careful and critical study of hundreds of service wagons. The figures given are intended to be for average requirements of the average service car built on the various chassis which are listed in the table

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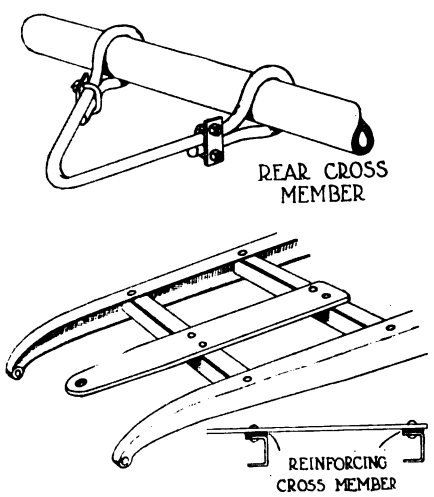
At the left is the service wagon developed by the Cadillac company of Chicago and illustrated on the first page of this article. The other views are of two more service cars also used by this company

permits the day driver to have one set of tools and the night driver another. Besides both can then carry the common tools direct to the job.

On smaller cars, such as the Chevrolet, Dodge, Dort and Ford, a patrol body arranged as shown in Fig. 3 is most attractive and just as satisfactory as that shown in Fig. 2. The bodies on these cars must be narrow, and if the tool boxes are of any width, no aisle space will be left. For this reason the tool box is only placed on one side. This body also differs from the other in that the original front seat is not used, for by incorporating a front seat in the service body the driver's space may be made smaller, giving more room to the storage space.

Fig. 4 shows a detailed arrangement of the storage space. The axe, shovel, crow-bar and pick axe are carried on hangers fastened to the sides of the tool compartment. If a towing dolly be used half round rests should be bolted to the floor, holding the dolly wheels securely in place. This view also shows the method of dividing the tool compartments by trays.

In addition to the regular car jack, two extra heavy capacity jacks should be carried. These may be held on the runningboard, either by means of an iron framework or by two thumb screws, as shown in Figs. 5 and 6. The latter method is perhaps the simplest, and is



Figs. 7 and 8—A simple form of towing link and a different type suitable for almost any car

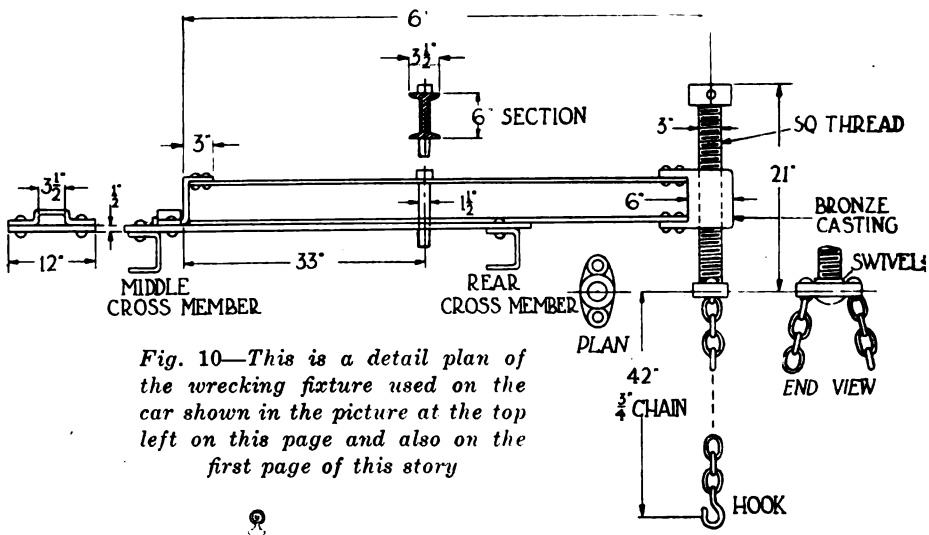


Fig. 10—This is a detail plan of the wrecking fixture used on the car shown in the picture at the top left on this page and also on the first page of this story

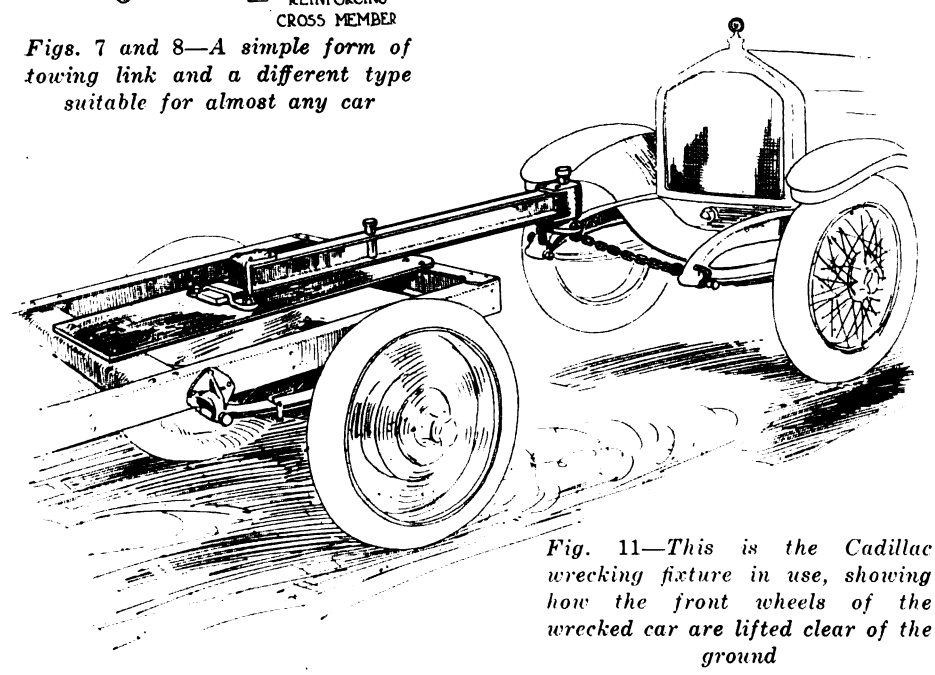


Fig. 11—This is the Cadillac wrecking fixture in use, showing how the front wheels of the wrecked car are lifted clear of the ground

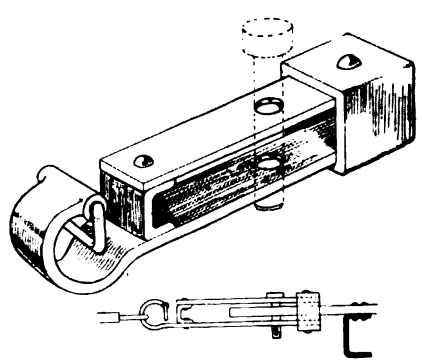


Fig. 9—A snap link like this can be removed when not in use and leaves the rear of the car unobstructed

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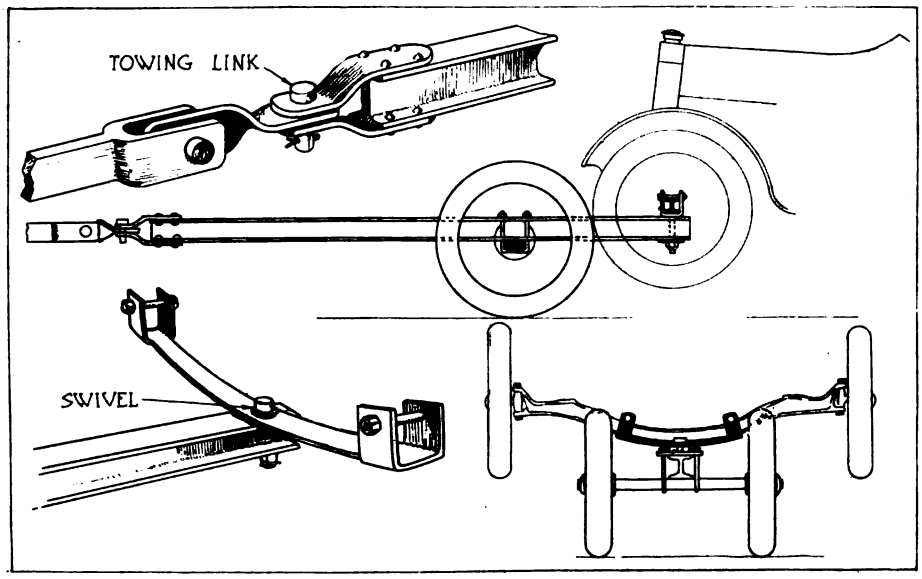


Fig. 12—The Loveland Co., Saxon dealer in Detroit, used this towing dolly; it has exceptional merit and is easily constructed

that used by Bemb-Robinson, Hudson dealer, Detroit.

A towing link of some sort is necessary. On cars having a round rear cross member, such as the Cadillac, that shown in Fig. 7 may be used. However, a steel plate, with an eye at the rear, riveted to the two rear cross members, as shown in Fig. 8, may be adapted to almost any car. The main requirement is that it be rigidly attached to the cross members, and that the cross members be adequately reinforced.

On cars in which a large overhang is necessary to the body a snap towing link connection, shown in Fig. 9, may be used. This is simply an extension to the fixed towing link, and is removed when not in use. The advantage is that by removing the link the back of the car is left clean, with no projections to catch the clothing of one entering at the rear.

The commercial form of towing dolly, or truck, is entirely satisfactory for bringing in disabled cars. However, many service stations have built their own forms of wrecking devices that possess merit, and may be built by any competent mechanic.

The Cadillac Motor Car Co. of Detroit uses the towing fixture shown in Figs. 10 and 11. A ¾-in. iron plate, 12 in. wide, is riveted to the frame cross members, and runs practically the length of the body. A 1-in. I-beam, 6 ft. long, is held to this by means of a Z-catch and a pivot, so that the I-beam projects about 3 ft. out behind the car. At the outer end, threaded into a bronze casting, is a square threaded shaft. This shaft carries two chains at the lower end by means of a swiveled hanger. In use the chains are fastened to the front end of the wrecked car, and the front wheels of the car are lifted from the ground. One man can then readily bring the car in, even though the front wheels and axle be entirely broken.

The Loveland Co., Saxon dealer, Detroit, uses a towing dolly that possesses exceptional merit. Its principle is illustrated in Fig. 12. A long I-beam is carried on two automobile wheels that are mounted on an axle about 40 in. long. At the rear a swiveled cross member, fitted with clamps, is attached to the front axle of the car to be towed. By pressing down on the front of the I-beam the front of the car to be towed is lifted from the ground, and is held in the elevated position after the towing link is fastened. One man can tow another car by means of this device.

The detailed construction of a one-man tow-bar for Ford cars is shown in Fig. 13. In this case, however, all four wheels and the steering mechanism of the car being towed must be in good order. A similar device is used on the Dodge Brothers car, and it could readily be adapted to almost any car.

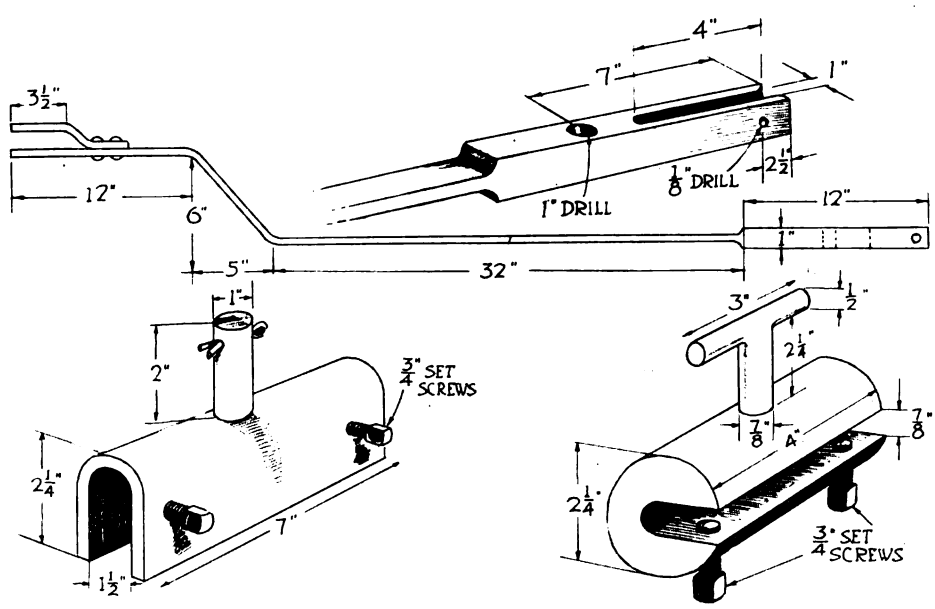


Fig. 13—Though the dimensions above are for a Ford chassis, a one-man tow-bar of this type can be made for nearly any other car

The above covers the construction and equipment of the service car. Other points are essential. The car should be painted in a distinctive manner—and kept clean and neat. Many manufacturers have a standard method of painting their service cars. For example, cars giving Chalmers service are painted English vermillion, with black hood and running gear. Hudson service cars are white, with black trimmings. If the dealer is giving service on a particular make of car he should find if a standard service car color is used. If not the car may be painted any bright color that will give distinction.

To Handle Union Truck Sales

BAY CITY, MICH., Jan. 21—The Union Motor Truck Sales Co. has been organized in this city with a capital of $10,000, the stockholders being also the stockholders in the Union Truck Co. The new company will have charge of the sales of all Union trucks with an office and warehouse in Chicago. The officers are: President, L. W. Hine; vice-president, H. E. Buck; secretary and treasurer, Geo. Beaulieur. The board of directors is composed of James R. Tanner, Walter Foss, Wm. H. Boutell, Howard Woodworth and the officers.

PORTLAND, ORE., Jan. 21—Important changes in the personnel of three automobile firms became effective recently as the result of a transaction concluded between A. S. Robinson, Northwest manager for the Pacific KisselKar Co.; W. H. Wallingford, Ford dealer, and E. A. Mitchell, distributer of the Liberty and Premier cars. Together with A. B. Smith, road man for the KisselKar, Robinson has bought out Wallingford and will take over the Ford agency. Wallingford in turn has bought out the interests of Mitchell as Liberty and Premier dealer.

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Editorial Observation

After the War

WHEN the war is over and peace is signed, and we start adjusting ourselves to the new conditions, we will find the old order of things past. The motor car will be with us; the motor truck will be with us; the farm tractor will be with us; the motorcycle will be with us.

But they will be with us under changed conditions.

We will never again revert to conditions in our industry as we were previous to the war. We will never do business in exactly the same way as we did previous to the war.

Our zone of sale will be a new and enlarged zone. The business will be done in a different way. Different standards of business will be necessary. Different standards of honesty will be essential. Different standards of efficiency will be imperative.

Our biggest problem is to interpret these changing conditions. The manufacturer is already bending every effort to this task. He recognizes that the prewar conditions will never return. The dealer must do likewise.

Take a simple example: A farmer in Ohio during the past fall found out that with a 1-ton truck he could make five trips from his farm to the elevator in the nearby town, carrying 40 bushels of wheat per trip in 1 day. The total was 200 bushels of wheat moved per day. With a team of horses working over the same road on the same day and between the same farm and the same elevator, the same farmer was able to move only 50 bushels of grain, or make one trip per day.

With such a comparison, namely, 200 bushels by motor truck, and 50 bushels by horse, there is not the slightest question as to the future of the motor truck on the farm. This example points to one of the changed conditions that will follow the war.

In our farming zones we must raise greater crops and we must get the grain from the farm to the warehouse quicker than ever before. We must have roads over which the truck can travel in rain or snow as well as in dry weather.

The flexibility of transportation demands it. It permits the farmer to sell under best market conditions. It makes the transportation of wheat from the farm to the station practically four times cheaper than with a horse.

Would anybody attempt to contend that in such a farming community there is not a demand for one of the most modern types of highways?

Would anyone attempt to contend that a highway would not be a necessary and substantial investment for such a community?

We must remove the scales that have blinded our eyes in the transportation world. We must have roads and we must have motor trucks in our farming zone.

Have You Read It?

THE greatest inspiration that has come out of the war for the men who are in the motor car trade was the address by Hugh Chalmers, delivered before 400 car dealers in Cleveland on Jan. 21.

The address was listened to and taken verbatim by a MOTOR WORLD staff representative and telegraphed in full for publication in our issue which went to press on the following day.

Mr. Chalmers did not talk from manuscript. He couldn't have been half as effective if he had. It was a straight man-to-man talk from a man who knows the car and truck industry and who, on account of his present official connection with the government departments in Washington could talk with greatest understanding and with maximum forcefulness to one of the largest gatherings of car, truck and accessory dealers ever assembled in this country.

If you have not read Hugh Chalmers' address, as reported in the Jan. 23 issue of MOTOR WORLD, get a copy of the paper and read it by all means.

And if you did read it then go back *and read it again.* It is worth it. That address is the greatest inspiration to dealers, jobbers and garage owners that has come out of the war thus far.

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What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Unwise Economies

The Doctrine of Fools and Why It Helps the Kaiser

The following, from the Harrisburg (Pa.) Telegraph, has been sent to Motor World. It is a clear and easily understood exposition of facts we all should keep in mind:

To the Editor of the Telegraph:

I very much fear your readers do not fully understand the true intent of the much discussed "Cash and Carry" plan. I fear they think that it is intended to cover very large purchases as well as small articles that easily can be carried home. If the plan were adopted the way some people understand it I would like to know how the newspapers of Harrisburg would get their supplies of paper from the railroads to their warehouses by the cash and carry plan.

I would like to have some one explain how the great bakeries of Harrisburg could deliver their bread on the cash and carry plan, and I would like to see what service the public would get from such a system. It occurs to me this is one of the most foolish things I have ever read in these days of prosperous times. Wouldn't it be exceptionally nice to see the coal dealers of Harrisburg go on the cash and carry plan? I should rather think that it would be a great deal better for the presses of the country to keep our industries going so we can buy Liberty Bonds to win the war and for this reason I submit the following articles, a part of which is taken from the Chicago Daily News and a part of which is written by one of the great editors of the South.

The man who shouts "hard times" these days is either a fool or a knave, and the truth is not in him.

By careful and painstaking investigation of every real news item on conditions throughout the country, we are unerringly led to the only conclusion possible—that business was never better and that prospects of big business in the future are growing bigger all the time.

"The South," to quote the editor of one prominent trade journal, "is literally burning up with prosperity." The huge army cantonments below the far-famed Dixie line demand such a volume of supplies that the merchants are staggering under the welcome burden.

New England is taxed to its utmost capacity to meet the nation's want of shoes and woolens, and its shipyards are crowded. The farmers in Aroostook county, Maine, have not yet recovered from the shock of the fabulous price paid for potatoes last spring, which paid off more farm mortgages in six months than in ten previous years.

The middle west is getting sky-line prices for grains and all other products, and the prices paid for beef and pork insure a profit of several hundred per cent. No need to discuss this further—everybody knows the farmers' pockets are well lined.

The Pacific Coast boom is heard half way across the continent and fruit and lumber can scarcely be marketed fast enough to supply the demand. If there is a section of the country that can truthfully plead poverty, then we haven't heard of it.

A fool can stand on the beach and let a little spray hit him in the face and right away he wants to write a book on navigation. America's first battle in this war will be with the fools right here at home. A tongue without a brain behind it is as dangerous as a gun in the hands of a drunken Indian. This war is so big and complex that a fool oughtn't to be allowed to monkey with it.

We keep cranks away from our powder factories and, by the same token, why shouldn't we keep fools away from our presses? Better still, why shouldn't we muzzle fools and intern them till after the war?

Here's what the fools are doing to us:

President Wilson, in his wisdom, exhorts the people to conserve their foodstuffs. And he appoints this man Hoover, who, by the way, is the most expert food conservation specialist in the world, to help the people raise their truck and to make their truck go farther—all of which is wonderful generalship.

But the fools, who can no more fathom a deep mentality like that of President Wilson than a canary can whistle the "Anvil Chorus," miss the whole idea and just manage to catch on to the tail end of the word "economy." So right away they want to go on a nation-wide hunger strike, start a bread line and raise Cain in general.

Secretary McAdoo asks the people to buy some perfectly good 4 per cent. government bonds, non-taxable, the best investment that any sane man could make—because it is the safest. Right away the fools shout: "Uncle Sam wants you to give him your money."

Fortunately the wise men are in a vast majority in this country, and the Liberty Bond issue went over with a bang. It was the wise men, though, not the fools, that did it.

Some other fools shouted: "Let's all wear cotton"—thoroughly ignorant of the fact that we need all the cotton we can get to make high explosives out of it, for ourselves and our allies. If the so-called "cotton wear" propaganda had gone over, we would have had to fight this war out with fire crackers, or soda crackers, or pea shooters. That was a fine idea, wasn't it? All of which goes to prove that we had better let the experts in this country carry out the President's ideas. And the rest of us can find plenty to do keeping the fools from throwing wrenches in the gears.

Right now the fools are busier than ever before. Some of them are holding peace demonstrations down in Boston, and the rest of them are sitting up nights trying to work out new stunts for putting business on the "Fritz."

President Wilson, after conferring with delegates from the nations that have been in this war from the beginning tells us that the all-important thing for us to do is to keep our industries going. In spite of this counsel, the fools are shouting at the top of their voices:

"Don't buy any automobiles."

"Don't buy any new clothes."

"Don't spend any money with the laundries—turn your collars wrong side out and wear them two days."

"Keep your wife away from the department stores."

"Don't let your children go to the movies."

"Don't do anything that will keep our factories and our stores and our places of amusement running."

"Close up everything and pay the expenses of this war out of the excess profits of bankruptcy."

The fools in this country might as well be made to understand right here that we are not going to play nito the Kaiser's hands by listening to their monkey chatter. We know just how serious this war is. We know, on the other hand, that our fools are even more serious.

We must have business in this country.

We must keep our heads up.

We must preserve our prosperity, because America's wealth is her biggest gun.

Shall we let the fools take the wheel at this dangerous turn in the road?

Please, you ninety-nine and seven-tenths millions, answer in chorus:

"WE WILL NOT."

ANDREW REDMOND.

A Word from Seattle

Editor Motor World: We were very much pleased to-day when we received the Dec. 12th issue of Motor World to note that you had been so generous in giving the Eldridge Buick Company a page on their trip to the mountain. Did you not think the pictures were very interesting?

We hope some day next summer that you can make it a point to come out here and take a trip up to the mountains with us. If you have never been up there you certainly have something to look forward to, and, by the way, have you read the story in the last issue of McClure's by Edward M. Woolley?

We want to congratulate the Motor World upon the stand they are taking regarding the automobile industry during the present crisis, and wishing you a Happy New Year, we remain.—Eldridge Buick Co., J. G. Fenton, Seattle.

Thinks Better Mechanics Department Wonderful

Editor Motor World: Just a word about your Better Mechanics Department. It's wonderful—a ready reference of A1 ability. I have all the sheets of Better Mechanics bound in book form. It is worth $50, and to think it is practically free! Keep it up.—A. L. Bennett, Bryant & Gillettes, Charlotte, Mich.

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The Kissel in summer



and in rain

Helping the Dealer Sell Enclosed Cars

Kissel Staged a National Display Week for Its Winter Cars and Dealers Got Good Results

THE Kissel Motor Car Co., Hartford, Wis., recently staged its annual enclosed car show week. The campaign was designed to aid dealers in getting a flying start into the cold season

In the lower right part of this page is shown some of the materials used in planning the work. The large piece of copy is an advertisement all ready to set up. All that remains to be inserted is the dealer's name. The "Don't Miss Our Display, etc.," line is also advertising copy.

With this advertising copy went various booklets and folders for presentation to prospects and for mailing out.

At the top of the page is shown how Manager S. S. Merney, of the Pacific Kissel Kar Co., Los Angeles, set up window displays. Similarly good displays were used in San Francisco, Portland and Seattle.

The window at the left shows the car in a summer setting. That at the right is shown in a shower of real rain. A small pipe was attached a few feet above the car's top and the spray covered the car entirely. The water ran off into a box beneath the car, from which it was pumped out. An electric motor turned the car wheels and branches of autumn foliage concealed the box so as to give the effect of fall touring to the observer. Spring was typified by a touring car amid a garden of blooms and summertime was expressed by a camp scene.



These are some of the folders and pieces of advertising copy used to get the all-weather touring idea across to the public

Jones Co. Adds Trucks

WICHITA, KAN., Jan. 21—The Jones Motor Car Co. has added two models of trucks and will manufacture 2000 during 1918. A 1-ton model, to sell at $1,100, will be ready for delivery Feb. 10, and a 2-ton model will be on the market by March 1. The Model N Continental motor will be used.

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The RETAIL NEWS

SOUTH

W. W. Ingram, agent for the Willard storage battery at Savannah, has moved his service station to Bull Street.

New Garages

Broward Sales Co.....Fort Lauderdale, Ga.

MIDDLE WEST

Carris-Franklin Co., Cleveland, will move to larger quarters in a few weeks. The new building is 75x150, 2-stories high, and cost $75,000.

Fred Faeser, Monroe, Wis., has sold his interest in Faeser & Lynch to his partner's son. The new firm will be styled Lynch & Lynch.

Louis B. Osbon has bought the interest of his partner, H. Heath, in the Ypsilanti Vulcanizing Co., Ypsilanti, Mich.

Simplicity Wheel Co., Grand Rapids, Mich., has rented more than 1000 feet of floor space of Miller's Ford Station, Lewis and Ottawa Avenues.

McDonald Auto Sales Co., Cadillac, Mich., has purchased the Enterprise Machine Co.

Robertson-Stansell Motor Sales Co., Detroit, recently formed by James A. Robertson and William R. Stansell, will move to 975 Woodward Avenue on Feb. 1. The company handles the Lexington.

Michigan Storage Battery Co. has been opened at 938 Jefferson Avenue, east, Detroit.

Red Osbon, the Tire Man, Ypsilanti, Mich., will open a new vulcanizing shop on South Washington Street.

Auto Supply & Implement Co., Plymouth, Wis., has been sold to Deicher & Arndt Co.

Herbert E. Hayner, Union City, Mich., has moved his tire repair shop and machinery to Hammond Street.

Thomas M. Orvell Co., Kalamazoo, Franklin dealer, will open a salesroom and service station in Battle Creek.

Floyd H. Johnson, Mt. Pleasant, Mich., has purchased the equipment of the Holly Tire Hospital belonging to William Hubble, Holly, Mich. Hubble will close his business in Holly this week.

New Garages

J. A. Pesch & Sons (addition) Campbellsport, Wis.
Fred Welch.....Bloomington, Wis.
Meili-Blumberg Co.....Chilton, Wis.
Wausau Motor Car Co. (addition) Wausau, Wis.
J. E. Hoghton (addition).....Delevan, Ill.
J. J. Dittmar.....Freeport, Ill.
Dickerson Lehmann Motor Co...Peoria, Ill.
Norris Adler-Moller Co.....Quincy, Ill.
Stouffer Bros.....Decatur, Ill.
J. Cooper Hoffman.....Battle Creek
Detroit Garage Co., Inc.....Detroit
Opera House Garage.....Pontiac
Hooper & Heaton.....Boyne City, Mich.

NORTHWEST

Carl Pederson, Bismarck, N. D., has bought a controlling interest in the Missouri Valley Motor Co.

A. E. Bunday, Brookings, S. D., has sold the Ford Garage to George Brown, Volga, S. D.

Harold Kappel, Woonsocket, S. D., has bought the R. E. Stevens Garage.

Ray K. Van Brunt and W. E. Stevens, Sioux Falls, S. D., have bought the W. Van Brunt interest in the Van Brunt-Overland Co.

C. W. Thompson, Sioux Falls, S. D., has bought the L. & L. Motor Supply Co.

Erdman Garage, Austin, Minn., has been sold to A. O. Watland, president of Motor Inn Co., Albert Lea, Minn. A. C. Thompson of Clarks Grove, Minn., has bought an interest and will be manager.

Lundquist & Larson, Graceville, Minn., have bought the Graceville Garage from P. Cota.

H. B. Boyer, Verndale, Minn., has bought the John Weber garage.

Earl Boyd, Rochester, Minn., has bought an interest in the Queen City garage.

W. J. Mattice, Primghar, Iowa, has bought an interest in the Hastings-Gains Garage.

Wm. Timmerman, Sheldon, Iowa, has bought the Trimp Garage there.

Shepherd and Buehler Auto Co., Red Oak, Iowa, has sold its business to F. H. Jackson, A. C. Larson and Bernard Peterson.

J. L. Curtis, New Hampton, Iowa, has bought the garage business of Frank and Charles Reilley.

Avald Reich, New Hampton, Iowa, has sold his garage to Frank Fleming.

J. W. Smith, Harris, Iowa, has sold his garage.

Colgan and Graham will take charge of the P. J. Calligan Garage at West Bend, Iowa.

Shaw Motor Co., Traer, Iowa, has bought the Freet Bros. Garage, Dysart, Iowa.

Chas. Hart, Afton, Iowa, has sold his garage to J. T. Underwood and Ralph Sullivan.

W. R. Harris, Ruthven, Iowa, has bought the DeMill Auto Co.

Robert Eager, Belgrade, Mont., has sold his garage to W. N. Skinner and M. Critzer, Bozeman, Mont.

New Garages

Matthews & Butler.....Fargo
Statham Garage.....Glendive, Mont.
Phil Ahles.....St. Vincent, Minn.
Wilson & Marttila.....Kettle River, Minn.
Brandl Bros.....Royalton, Minn.
J. A. Olson.....Cambrudge, Minn.
H. R. White.....Huntley, Minn.
R. E. Shulty.....Washington, Iowa
C. R. Notestine.....Newton, Iowa
Harley Dygert.....Nevinville, Iowa
Harold Travis.....Marion, Iowa
J. F. Fraser.....Tingley, Iowa
Standard Oil Co. Filling Station Chariton, Iowa
Iowa Motor Sales Co.....Lemars, Iowa
A. E. Jones.....Nashua, Iowa
Manson Auto Co.....Manson, Iowa
Fred Huyck.....Monticello, Iowa
Lee Burns.....Toledo, Iowa

SOUTHWEST

C. C. Drotts, Stockton, Kan., has fitted up automobile salesrooms in the National State Bank Bldg.

Ralph Love, Arkansas City, Kan., has bought the interest of his partner, Carl Marshall, in the Union Motor Co.

Buckles Brothers Automobile Co., Independence, Kan., will enlarge its quarters.

Dent & McCaughey, Olathe, Kan., have bought the City Garage.

J. N. Thouvenell, Winona, Kan., has bought the U. P. Garage.

Western Tire & Battery Co., Hutchinson, has opened new quarters.

Reed & Carey, Belleville, Kan., have leased the Meridian Garage.

Auto Supply & Tire Co., Wichita, has moved to larger quarters on the same street.

John Joiner Garage, Dockery, Mo., which was recently destroyed by fire, is being rebuilt.

Sam T. Thompson, Craig, Mo., has bought the garage of J. E. Thompson.

Central Motor Car Sales Co., Springfield, Mo., will move into a new building.

Hiram Swope, Sedalia, Mo., has bought J. F. Smith's garage.

The Four-B Garage and Taxi Co., Neosho, Mo., is moving to new quarters.

Jameson Service Station, Fulton, Mo., has taken over the Renner Bros. Garage.

Inter State Tire Co., Joplin, Mo., will open in new quarters.

Kincaid-Vaughn Motor Co., Henryetta, Okla., will move into the Kincaid Bldg.

Emil Butler, Fairview, Okla., has bought the Orient Garage from Homer Compton.

Fletch Alford, Stonewall, Okla., has bought the City Garage.

E. H. Smith, Leedey, Okla., will move his garage to the Gates Bldg.

Visuer & Visuer, Okmulgee, Okla., have succeeded Visuer & Dewey in the Okmulgee Garage Co.

Roy Elam, Tulsa, Okla., has moved his vulcanizing shop to larger quarters at Second and Elgin Streets.

Hamilton-Lynch Auto Supply Co., Tulsa, Okla., has opened a supply store.

W. D. Shepiow, Pawnee, Okla., has bought the Oklahoma Tire & Equipment Co., from Henry Wilson.

P. O. Baxter, Hockerville, Okla., has bought the Malone Garage.

New Garages

C. E. Florence.....Wichita
Goldman & Harris.....Pittsburg, Kan.
Miller Bros.....Council Grove, Kan.
Peterson, Nelson & Nelson..Lindsborg, Kan.
Ossie Pichard.....Pittsburg, Kan.
Cole Bros.....Kelly, Kan.
Whittaker & Featherstone Council Grove, Kan.
R. E. Vineyard, Jr. .....Wharton, Tex.
Chesney & Hensley Bros....Gainsville, Tex.
Cox & Griffith.....Seymour, Tex.
Harwick & Jordon.....Waco, Tex.
Chas. Goodwin.....Carrollton, Mo.
Wm. Smith.....Clinton, Mo.
W. H. Smith.....Butler, Mo.
Louis Ringe.....St. Charles, Mo.
F. M. Reinsmith.....Monett, Mo.
Morris & Sewell.....Ryan, Okla.

PACIFIC COAST

Arthur Leighton, Las Animas, Colo., has sold his vulcanizing plant to Evans & Hoerner.

Mace Bros. have bought the Miller Bros. & Co. Garage at Lamar, Colo.

W. H. Wallingford, Ford dealer in Portland, has sold his agency to A. S. Robinson.

R. W. Bender has bought the Central Garage, Martinez, Cal.

Corkett & Cole, Ford dealers at Martinez, Cal., have erected a new building 50x125 and will handle the Cadillac, Hupmobile and Franklin.

The Mt. Diablo Tire Shop, Concord, Cal., has installed a vulcanizing plant.

Agler's Garage, Concord, Cal., has changed hands.

The Central Garage, Walnut Creek, Cal., is being remodeled.

Donald Foster and P. K. Peterson, Seattle, have opened an auto lens service station for testing headlights and installing lenses.

T. M. Houser, Spokane, has been appointed factory representative for the Republic Motor Truck Company for Idaho, Oregon and Washington.

Tire Service House, Bellingham, Wash., has leased the Panama Theater Building, and will remodel it.

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How to
Sell Commercial Bodies

To Counteract Any Decline in Your Business During the Winter Months

A Plan of Special Importance to Ford Dealers, Extension Unit Dealers and Garagemen

ONE thing is certain, merchants and business men use commercial equipment the year 'round; in fact, you will find the coming months most ideal to go after business on the commercial proposition.

Contributed by C. Zinhan, Advertising Manager of the Parry Mfg. Co., Indianapolis

YOU will have more time in which to conduct an effective campaign. This same spare time will provide the opportunity of keeping your help busy overhauling old chassis and fitting them with a new body that will mean a ready sale. Thus it can be done at a minimum expense.

Ford dealers ordinarily are over-sold on new cars the greater part of the year. Not so during the winter months. More chassis are available then and they can be readily disposed of at a double profit by fitting them with suitable commercial bodies.

Selling Used Cars

Don't overlook the extra money in used cars. There are big profits for you in used Fords. But don't take them in and sell them "as is." Get your used cars—all of them you can—remove the old bodies, and if they are in decent shape sell them for all you can get.

Equip the chassis with a business body and sell them as the best and most economical delivery cars made.

This is the season of the year when the merchant will be confronted with the problem of delivery during the holiday season. That's one of his worries at this particular time. He doubtless remembers the difficulties of the past season and of course is awaiting the solution. You have it in a commercial outfit.

You will find any number of cases where horse-drawn outfits were not capable of the strain during the holiday season. Goods were shipped late at night or the next day to the dissatisfaction of every one.

Make your appeal from this angle and you'll have eager, open ears ready to give commercial equipment careful consideration, even give you a chance to prove your claims, and you can do it; therefore, a sale is made.

There are thousands of miles of good service in practically every used Ford chassis. Ford parts are cheap when overhauling must be done. A coat of paint costs but little—a commercial body is inexpensive—and will make it look like a new car. And it will give the same service, dollar for dollar invested, as a new chassis.

More profit can be made in this way than on a new Ford if properly handled. You can offer the merchants of your city cheap delivery and build up a big and profitable department of your business.

Try This Plan

1—From your records or other means at hand get the names of all the Ford owners whose cars have been in use a year or more. Make a list of them. Write each a letter urging the advisability of turning in their old car and driving a new one. Show them how it will pay them to do this every year and at a small expense always have a new car they will be proud of. That's one profit.

2—Take off the body. If it's in any kind of shape at all you'll find a ready sale for it. About all you need to do is place it outside your place of business with a "for sale" tag on it. Another profit—and without any expense to you.

3—Overhaul the chassis. Put it in good shape, replace all worn parts, give it a coat of paint, equip it with a business body and you are then ready for your selling campaign, where each sale means another profit.

Delivery Body Letter

Your business is represented all over this community by the appearance of your delivery equipment.

If you have a snappy, business-like commercial body on a Ford chassis, it is sure to attract attention and inspire respect among your customers and prospective customers.

Besides that, it is the best, quickest, and MOST ECONOMICAL method of delivery.

Why not call us up—Belmont 67—or drop around at our salesroom—82 West Washington Street—and let us show you a commercial body adapted to your particular needs?

Let us show you—

Not merely what it costs you but—

What we can SAVE you—now.

How to Sell Your Prospects

1—Make a list of all merchants in your city that should be using commercial equipment for the betterment of their business.

2—Take advantage of the manufacturers' help. They will, as a rule, be glad to co-operate with you in this campaign, lending you such assistance as sending letters to this list of prospects you have compiled, providing you with literature, circulars, letter enclosures or lending you electrotypes for newspaper advertising.

3—Determine how much you can afford to spend for advertising—and advertise.

4—If you can't employ a salesman to call on your most likely prospects, write each a letter or series of letters (not more than three) and impress on them these features of motor delivery:

How it will do the same work at less expense.

How it will displace part of his help and equipment.

How it will widen his delivery limits.

How it will increase his customers in number.

How it will build up prestige.

How it is necessary to progress.

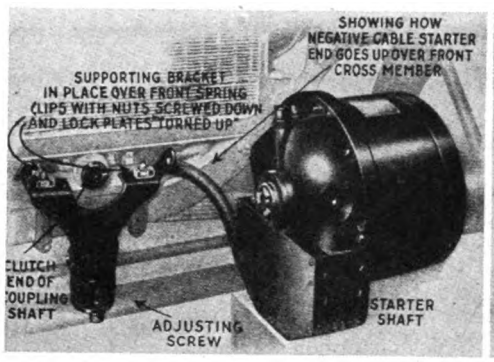
And if you call on them have the figures and examples to illustrate. Or if you prefer, use any of the truck letters shown in the Oct. 10 issue of Motor World or the letter shown on this page.

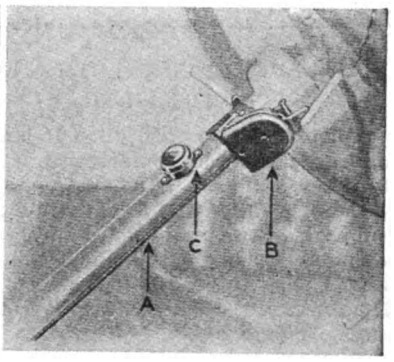
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Accessories

EVEREADY FORD STARTER

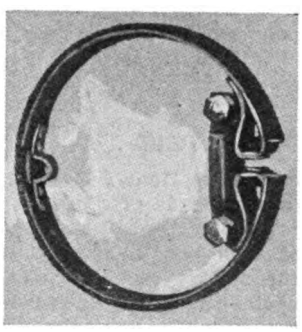
Departing from the style of most Ford Starters, the Eveready type is not located under the engine hood, but is attached to the Ford chassis front cross member, in front of and below the radiator. The starter is an electric motor which is controlled by the regular Ford spark lever, and it receives current from a storage battery included in the equipment. When not used for starting, the electric motor serves as a generator. The lighting current is also supplied from this battery, and is controlled by a switch on the left hand side of the front seat heel board. Price $85.—American Ever Ready Works, Long Island City, New York.





EVER SAFE BRAKE FOR FORDS

This is designed to take the place of the regular brake shoe without changes being necessary. It is lined full length with wire-inserted long-fibre asbestos lining which can be renewed. Adustable shims are provided, allowing the lining to be entirely worn out. The band is made of steel. The prices per pair are: Raybestos lined $2.50; metallic lined for extreme conditions $3.50. Extra, flexible, interchangeable metallic linings ready to attach, per pair $2.25. —Never Break Products Co., Bangor, Pa.



CLIMB-OUT AND SHOVEL

This device serves first as a shovel to make a path for a mired wheel and then as a track on which the car may be run from a hole. In addition a wheel attachment is provided whereby the device may be used as a wrecking truck, when one wheel is disabled. It comprises a metal trough in which are a series of tire cross chains, providing traction. One end is beveled to form a shovel-edge and the other is metal capped carrying a bearing and a wheel attachment and serving as a handle. In addition the Climb-Out may be used as a jack foundation in soft ground.—S. H. Heginbottom & Co., Room 312, Bearinger Bldg., Saginaw, Mich.



SYRACUSE FORD LOCK

A five-tumbler lock in which the common contact strip through which the current reaches the coils is grounded, thus effectively preventing any means of connection without the key. It fits both the old and new Ford switches. Price $2.50. —Syracuse Universal Mfg. Co., Syracuse, N. Y.



SHALER ROADLIGHTER

This is a headlamp lens for deflecting the rays of light so that they will not rise above 42 in. over the roadway and having prisms arranged on the rear side so that the proper illumination is thrown to the sides of the road to comply with the various lighting regulations in all States. The front of the glass is perfectly smooth. Various sizes are made, those for the Ford selling at $2.75 and for all other cars at $3.50 per pair.—C. A. Shaler Co., Waupun, Wis.



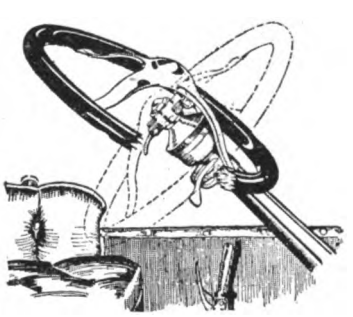
VICTOR LAMP FOR FORDS

There is a new Victor electric lamp for Fords which can also be used as a trouble lamp. The reflector instead of being fastened in the body is attached to the door and the door is hinged at the bottom so that when it is opened it carries with it the bulb and reflector. By swinging the door down the light can be directed at any angle. The lamp is 4¾ in. in diameter and is equipped with a 4 c.p. tungsten bulb. It may be operated on a 3,- 6- or 9-volt circuit. The reflector is brass and the lamp body is in black finish. The price per pair is $4 retail.—Corcoran-Victor Co., Cincinnati.



WOODWORTH CLEARLITE LENS

An anti-glare lens, the upper half of which is composed of a waving surface molded on the inside of the glass, the waves extending vertically. The lower half has a series of prisms, extending horizontally, also on the inside of the glass, deflecting the light downward on the road. Made for all types of cars. List price from $3 to $4.50 per pair according to size.—Woodworth Mfg. Corp., Niagara Falls, N. Y.



GRIPWELL PULLEY COVERING

A refined vegetable oil compound of great adhesive power which, when applied to iron, steel, wood or fibre pulley surfaces greatly increases their grip and is said to add 30 per cent to their tractive power. It is applied only to the pulley, not the belt, and therefore can have no injurious effect on the latter. It is applied in connection with a specially prepared canvas. Guaranteed five years. Price $1.25 per lb. Special price on trial outfits. — Gripwell Pullev Covering Co., 13 Water St., New York.

GEMCO STEERING WHEEL

A tilting steering wheel replacing the ordinary Ford wheel without mechanical changes, the spiders being machined to fit the standard Ford steering column. The wheel is 17 in. in diameter, 2 in. greater than standard. It can be tilted and readjusted in one second. Price with plain or corrugated rim $4.70 and $5.20, respectively.—Gemco Mfg. Co., Milwaukee.

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Repairshop Shortcuts

From The Motor World Roadman

1529—SPRING CONNECTING-ROD FOR TRAILER

A double-spring connecting-rod, acting both in tension and compression, is made of strap iron bent to the shape shown in the illustration and fitted with a drawbar provided with two coiled springs, one acting to the pull of the truck and the other easing the shock of a sudden stop. The forward end of the drawbar engages a yoke of strap iron bolted to the rear of the truck body through an eyebolt which allows the trailer to assume any angle with respect to the truck.—C. C. Spreen, Flint, Mich.

1530—UTILIZING COMBUSTION GASES FOR HEAT

An effective heater for the upper floors of a garage can be made with discarded hot-water kitchen boilers by the arrangement shown in the illustration. The smokepipe of the stove on the lower floor is disconnected from the flue and led through the ceiling and the bottom of the boiler, its open end extending to within a few inches of the boiler top. Another pipe extends from near the bottom of the boiler through its top and thence to a second boiler on the floor above where the same arrangement is repeated. The smoke and all combustion gases must, therefore, completely fill both boilers before entering the smoke flue above the second boiler. A considerable amount of heat is stored in each boiler and radiates from it as well as from the exposed pipe. A damper in the pipe where it enters the flue is controlled by a wire from a point near the stove.—J. J. Meehl, 5 Hamilton Avenue, Greenwich, Conn.

1531—JACK FOR FORD CARS

A serviceable jack for Fords is made from a steel plate 15 x 16 x 5/16 in. mounted on four swivel castors and having a frame made of two pieces of steel 35 in. long, 2 in. wide and ⅜ in. thick, shaped and bolted to the frame as shown. A Ford driveshaft bolted to the bedplate serves as a handle. The jack is simply tipped forward under the axle and a slight downward push on the handle lifts the car. Two such jacks make a very good turntable.—Carl G. Cary, Keyes Garage, Oakland, Ind.

1532—DETACHABLE LICENSE-PLATE HOLDER

To avoid waste of time in attaching and detaching license plates on new cars taken out for a short time only for demonstration and testing, each plate is attached to a steel frame having a hooked member fitting over the headlamp tie-rod and held in place by a setscrew.—C. C. Spreen, Flint, Mich.

1533—SOCKET WRENCH

A convenient socket wrench for removing or replacing the special type of piston-pin retaining screw used in the Dort engine is made from a ¾-in. steel rod 3½ in. long with an hexagonal socket ⅜ in. across the flats and ⅜ in. deep in one end, and a 5/16 in. hole through the other end for a handle. It is a great time saver.—C. C. Spreen, Flint, Mich.

1534—STEADY-REST FOR LATHES

A lathe steady-rest for holding long bars of angular cross-section is made of a piece of steel tubing, with four setscrews tapped into it at right angles near each end to hold the stock. The center of the tubing is machine-smoothed and turns in the steady-rest bearings of the lathe. Square, hexagonal or other shaped rods can thus be steadied as accurately as rounds.—C. C. Spreen, Flint, Mich.

$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay $1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.

1535—PORTABLE REPAIRSHOP LIGHT

An excellent portable light for use about cars in the shop is made by soldering an ordinary lamp socket inside of a tin funnel and providing the ends of the flexible cord with test clips, which are hooked to the battery terminals when the lamp is in use. The funnel acts as a projector for the light and also protects the bulb against breakage.—A. L. Bennett, Bryan & Gillette, Charlotte, Mich.

1536—OLD FIREHOSE FOR ANTI-SLIP FLOOR COVERING

Old canvas firehose makes an excellent covering for use on the inclined entrance to the garage and on ramps within the building, preventing the slipping of wet tires and protecting the wooden floor surface from chains. The hose is cut lengthwise and tacked to the floor like a carpet, with the canvas side up. It gives a perfect grip and costs only the labor of laying.—C. C. Spreen, Flint, Mich.

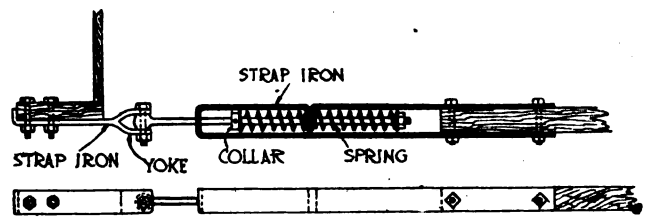
1537—BEARING ALIGNING REAMER

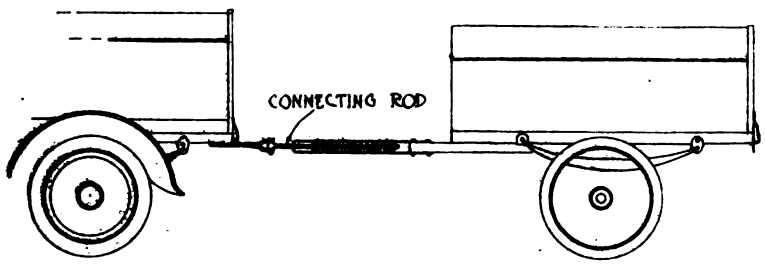
A convenient and inexpensive bearing aligning reaming bar is made from a true bar 4 ft. long, ⅞ in. diameter turned down to ¾ in. for 10 in. of its length. A spiral reamer .003 in. under the desired finished bearing, with ¾-in. hole, is keyed to the turned end. Four collars are provided, two of which slide over the ⅞-in. shaft .003 in. under the finished diameter, one on the ⅞-in. shaft with the diameter of the bearing clamps, and the other on the ¾-in. end with outside diameter .003 in. under that of the finished bearing. When the collars are placed in the crankcase in their proper positions the bearing liners can be reamed to within .003 in. of the required finish with a great saving of time.—C. E. Bradish, 106 Queensbury St., Boston.

Monroe Reduces Price

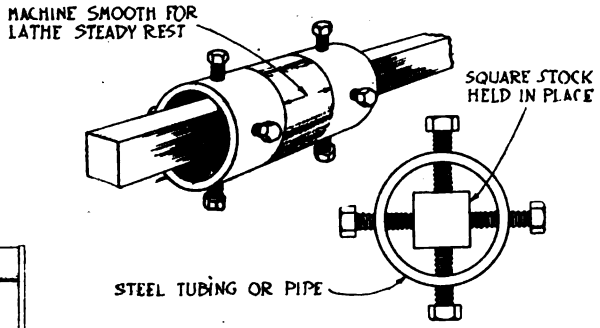
PONTIAC, MICH., Jan. 25—In spite of the continually increasing cost of material, and contrary to the practice of most motor car manufacturers, the Monroe Motors Co. is decreasing the price on its product for 1918. The model N-6, four-cylinder touring car, previously cost $1,095, and this has been reduced $100 for the coming year. The sedan body, mounted on the same chassis, sells for $1,850. The reason stated for this decrease is that an increased production renders the reduction in price possible.

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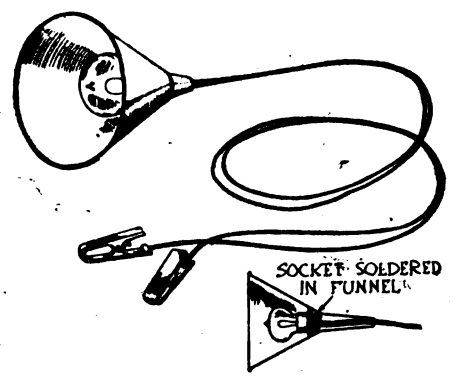




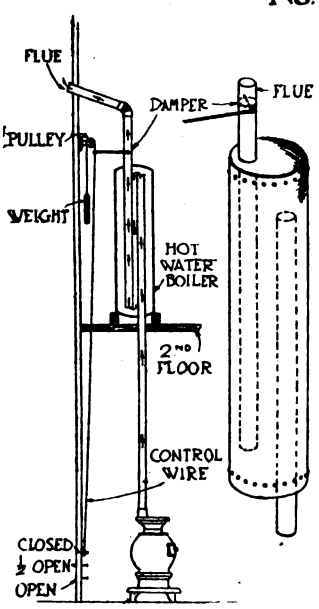
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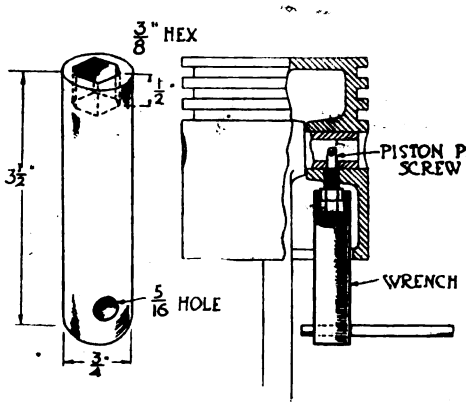
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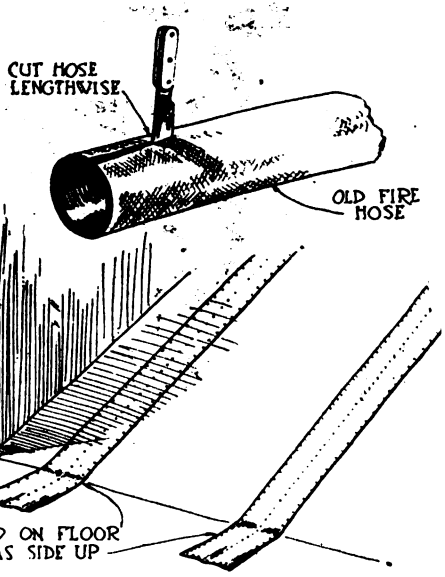
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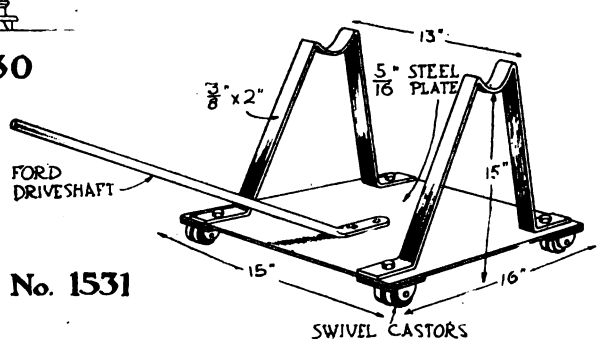
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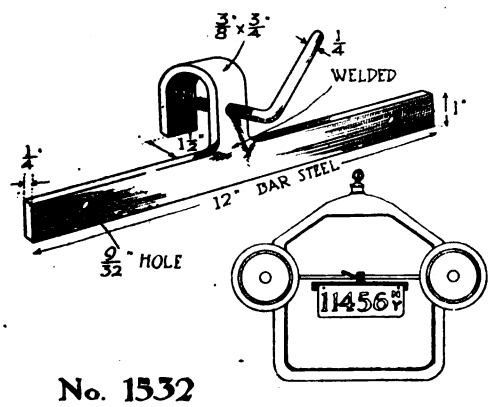
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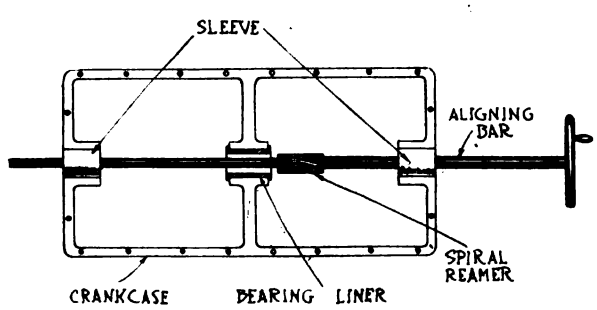
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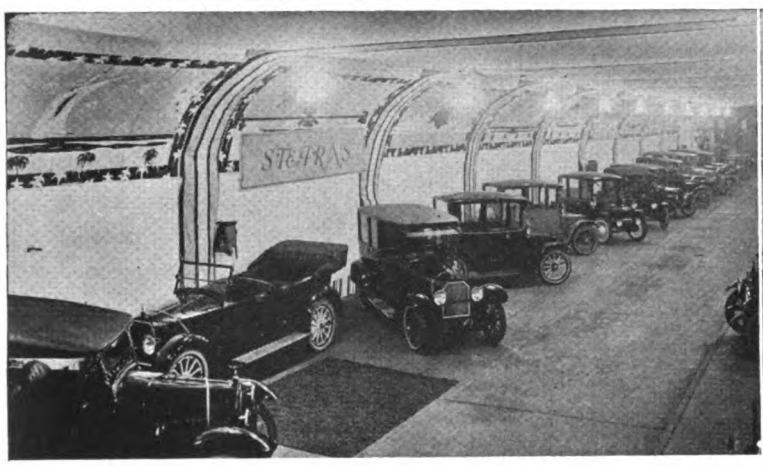
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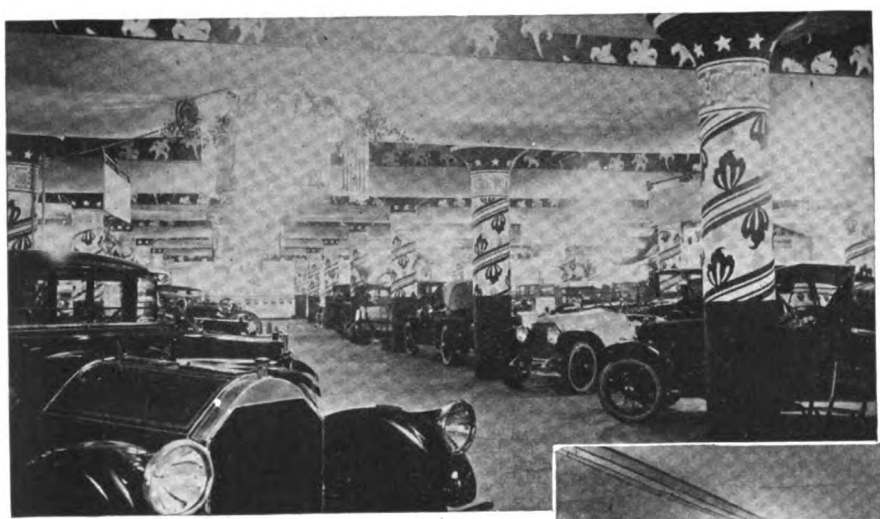
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How Philadelphia Put Over a Real





The two views above and the one just next them on the other page give a general idea of the appearance of the "White Room." Note *the effect of spaciousness and air, the entire lack of crowding and the attractiveness of the layout*



This is the Red Room and the dark part of the decoration was all red, giving a very pleasing effect—"A snappy exhibit," says Ray W. Sherman, who wrote the story about the show in last week's MOTOR WORLD



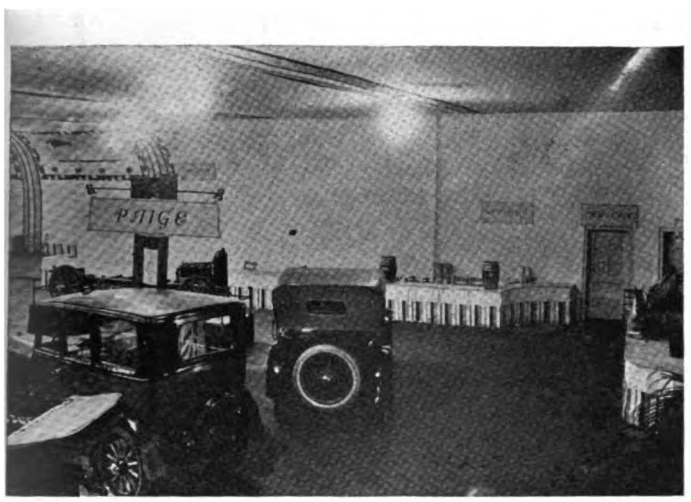
The Winton exhibit at the right was the only one at the show where there was any special decoration. Here there was a fountain which went a long way toward making the space attractive



You cannot see the rug that hid the bare floor in this picture but it is there anyway and it helped a lot in making the exhibit home-like and inviting

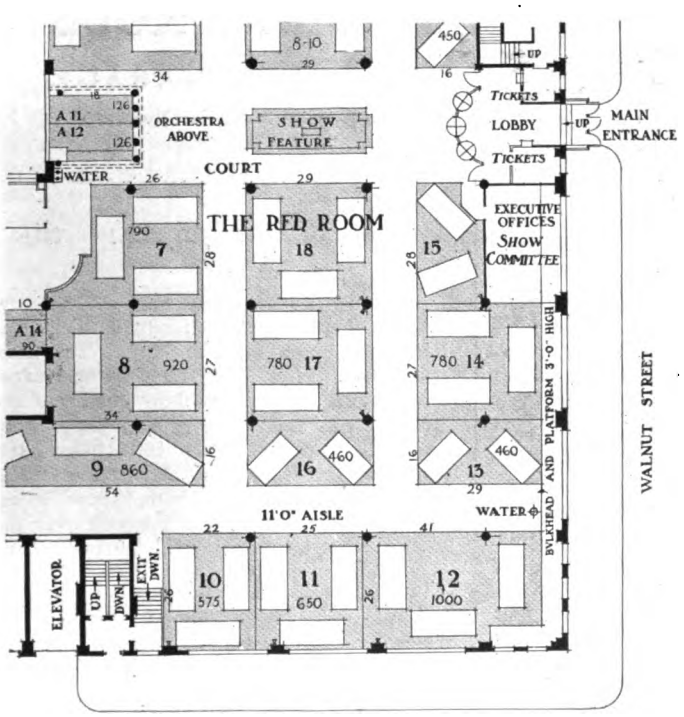
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Good Show

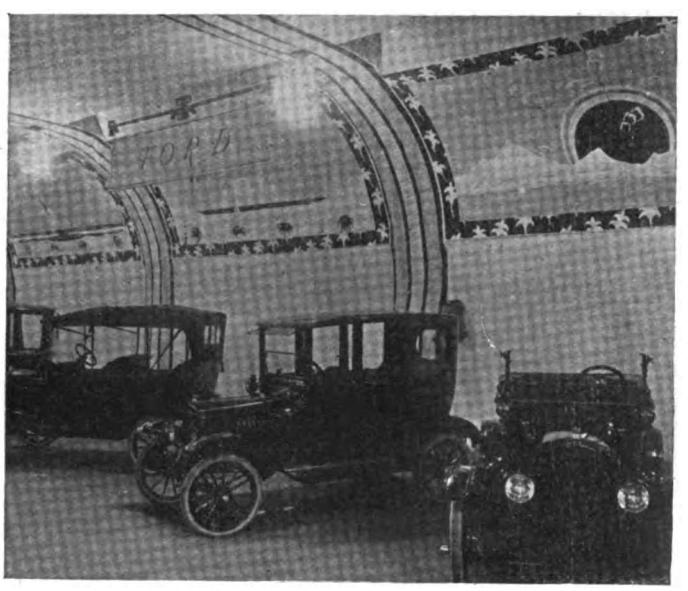


THE Philadelphia Automobile Trade Association had a wonderful show last week. (These pictures would have been printed with the story but for the fact that Dr. Garfield made the engravers close down last Monday.) It was wonderful because it was well planned and what is more important, it was planned well in advance and then those who exhibited were made to stick to the plan. There was no jamming cars any old place an exhibitor had a mind to jam them. Each exhibitor had a certain size space and was told just how many cars he could put in the space—no more. Judge of the result from the pictures on these two pages.

Below is a section of the floor plan that was drawn up weeks before the show was actually opened. In each exhibit space a certain number of cars were drawn on the plan according to the size of the space. Then the dealer was told he could put just that many cars in the space—no more. Of course, everybody did as they were told and the result is that Philadelphia had one of the nicest shows that has been staged



This is what you saw when you walked in the door at the Philadelphia show. It's a W. S. S. booth—War Savings Stamps. Incidentally, its view gives a very good idea of the broad aisles and the attractive decorations



And here is the Ford exhibit, which also gives some idea of the treatment of the side walls



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Winter Business

Drive for Winter Business

Drive! Drive!! Drive!!!

BOOST FOR WINTER DRIVING

The Winter Bulletin issued by John Millen & Son, Montreal, is a good one. Not too long, only 16 pages, but full of real winter accessories. The inside of the front cover is a bulletin by itself. It is given as a winter help to the trade. Good! Use it as a model. Pass the idea along. Boost for winter driving and winter business.

This is the *Car* all tattered and torn
That staggered in so battered and worn.
This is the *Shop* where she was towed
That sent her out to scorch the road.
And this is the *Man*, so ready and quick,
Who trimmed her up and "turned the trick."

Winter Bulletin

1917-1918

* *

THIS Bulletin is issued as a Winter Help for Business for our trade friends. Each year shows a constantly increasing amount of winter driving, and the wide awake dealer with suitable goods on hand keeps his cash register busy during winter as well as summer months.

Your special attention is directed to several new lines listed. The Tri-Co Rain Rubber is sure of a large sale; it is a cleaner adaptable to all types of two-piece windshields, and a necessity for safe driving in stormy weather.

A word on the "Copley Primer." This is something more than a mere primer as heretofore known. It provides not raw gasoline, but an explosive mixture—it is a carburation device in itself, and has been known to bring in a car with the regular carbureter out of commission.

The "New Osgood" Lens combines scientific accuracy with practical results. Legislation is afoot in Canada to obligate the use of anti-glare devices—a boon to the motorist and a source of profit to the dealer.

Anti-freeze mixtures, engine and hood covers, foot-warmers, tonneau heaters, priming plugs, etc., are a few of the standard lines already on your shelves, but are shown as seasonable reminders.

Our many customers handling "Veedol" Lubricants are advised to have on hand a stock of the lighter grades. Most necessary in winter weather is a high-grade cold-test cylinder oil, and "Veedol Zero" fills the bill.

Boost for Winter Driving and Winter Business

Bulletin No. 58 *November* 1st, 1917

ANDREW KOLB
HIGHLAND GARAGE
Midland Avenue Nyack, N. Y.

THE CAR, THE SHOP AND THE MAN

This is the combination you are trying to bring about. Andrew Kolb has the idea. You are the Man. You have the Shop. Now—get the Car. Go after it. People won't know how good you are unless you tell them. And they wont remember if you only tell them once. Keep at them. Write. Advertise. Talk. And when you get them, show them. Make each job the best job you ever did—and the next one still better. Then improve on that.

If you keep this up you will have to enlarge your shop, though.

Have YOU done your best?

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Give the Other Fellow Some

You can't get all the business there is. Hard luck, but a fact. Another fact is that if you were the only man in the business there wouldn't be any business. Many cars, many repairs, many shops. The thing works in a circle. The main point is to show the customer what his needs are. The more he needs the more business you—and the others—will get. Don't knock your competitor. Boost him. It helps you as much as it does him. Perhaps more. Create business. You will get your share. Every new idea you put out is a talking point for him as well. Every advertisement he pays for is so much publicity for you also. You are partners in the business of getting business. Competition may be the life of trade. Co-operation is its very soul.

Splendid Co-operation

HERE is a man who has learned that if you try to keep everything for yourself you don't get it. By helping the other fellow you help yourself. And he has proved it. Read his letter. Have you ever advised a customer to stock up before seeing you? Not on your life! But that is exactly what the G. Norman Baughman Co., Tampa, Fla., are doing and—read the letter! It is the best essay on successful co-operation that we have seen for many a day.

Editor Motor World: Someone estimated that for a certain length of time during the height of the tourist season in Florida last year fully 1500 cars per day passed through Jacksonville driven by northerners en route to some point in southern or central Florida, or on a vacation tour during the cold part of the season.

On this basis a great many thousand automobiles entered Florida from other parts of the United States and stayed on an average of at least four weeks. Each machine probably averaged four persons. Each of these persons was on a vacation, had money to spend for vacation purposes, and spent it much freer than they would perhaps be inclined to under their home environment.

This meant a big increase in business for automobile dealers, garages and, of course, ourselves, with the result that each year we have been in business in Florida, January has been the largest month that we have had, and we have never been able to reach it during any one of the other eleven, until the following winter. For instance, January of last year was the largest month we have had in our business until October of this year, when we went ahead of January by several thousand dollars. We expect to do that again in November, and in December, with another high mark set for January, 1918. In fact, our business is so much better during the winter time that we are more concerned in ways and means of increasing business in the summer months than we are in the winter.

The greater percentage of this large number of cars that come to Florida in the winter time are fully equipped as to extras before leaving the home of the owner so that the Florida dealers are knocked out of a great deal of business that they might otherwise get. This, however, is only natural, as one starting on a prolonged journey prepares for every emergency.

We believe that one good way for the better class garage men and dealers in the north to increase winter business would be to cater particularly to those people who contemplate a southern winter trip with their car and equip them with all of the many touring comforts and necessities that can be had to-day. No doubt many of the winter visitors to Florida in the bustle and hurry of preparing for their trip overlook many things that could be sold to them with a little solicitation on the part of the alert dealer at considerable profit to himself.

I should not advance this suggestion as it is contrary to our best interest and the class of trade which we serve, but it offers such a good opportunity for the northern dealer to stimulate business that he should not overlook it. Florida dealers will get their share out of the sale of necessities and the increased prosperity of the state in general.

We have been much interested in your timely articles on winter business and although they have not applied to us, we have read them with great interest and have obtained many valuable suggestions from them that we find we can use even in the sunny summer clime of southern Florida. — The G. Norman Baughman Co., C. D. Pettingill, Sales Manager.

Overhaul Cars Now

Editor Motor World: There has been a very strong tendency on the part of car owners to put their cars in dead storage as soon as the real cold weather sets in. These cars are invariably kept in storage until nice warm weather in the spring and then there is a rush for repairshops.

In our business we have an excellent opportunity to observe how this works. There is thousands of dollars worth of work that should be done on these cars before they are put in commission, and in a great many cases, in fact in most of the cases, the repairshops are so busy that they simply have an opportunity to do the absolutely necessary repairs and a great many small details that should be taken care of are neglected. This means that the life of a car is materially shortened. It means that during the extremely cold weather repairmen are sitting around like farmers playing tag with their thumbs, and just as soon as warm weather comes they are so busy that, working day and night, they cannot take care of it all.

In our business we make it a point during the quiet season to work on stock that we anticipate will be used during the rush period. If it were not for this, we would not be able to take care of one-half of the business that is given to us. The repairmen cannot make stock repairs. They must wait till the cars come in.

Another thing, we are optimistic enough to believe that next spring there is going to be a great demand for cars. At the present time it is common knowledge that there is nothing like the number of automobiles being made that there has been heretofore. The Government is taking over a great amount of the output of several factories. This will mean that there will be a big demand for good used cars.—Houpert Machine Co., New York.

An Excellent W. B. Letter

An excellent winter business letter is this one, sent by the Colt-Stratton Co. with a Dodge car catalogue. It is very brief and puts its message strongly and clearly.

Dear Sir:

Dodge Brothers motor car possesses marked individuality.

One principal characteristic is its economy of operation.

Another is its scarcity, especially in the spring, when everybody tries to buy one.

This trait deserves more than your attention it justifies prompt action.

Yours very truly,
COLT-STRATTON COMPANY,
H. R. Bliss, Vice-President.

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Pack Up Your Troubles in Your Old Kit Bag and

Smile, Smile, Smile

By Ray W. Sherman

REILLY, who sold the Sennett in Callawassa, and who was still selling that well known car despite those who said it couldn't be done, was walking out to lunch.

He pulled on his overcoat as he walked out the office door and started across the salesroom.

Twelve feet from the office door he stopped, turned around and went back.

"Tommy," he snapped to Tommy Trumbull, sales manager of the house of Reilly, "there'll be a sales meeting at 2 o'clock!"

"Two o'clock?"

"Yes, 2 o'clock! I know it's sudden—but there'll be a sales meeting at 2 o'clock."

And at 2 o'clock there was a sales meeting with eight young men gathered around the big office in chairs. They didn't know what was coming—but some of them looked as though it were the end of the world.

"Boys," said Reilly, without the trace of a smile, "this is a damned important meeting on a mighty serious matter.

"As I was going out to lunch this noon I saw Henderson standing in the middle of the salesroom. He stood up fairly straight and all that and he wasn't sleeping on a runningboard, but the way he looked scared me."

Henderson looked puzzled and worried.

Henderson Was Puzzled

"He looked as though he felt that business were rotten and the end of the world were at hand. His face was long, his mouth was shut, but his whole face sagged, his body sagged, his mind sagged and the whole salesroom sagged with him. He even made the new cars sag and the plate glass in front even slumped down a couple of inches.

"Boys, it was terrible!"

One of the boys started to laugh—but didn't.

"I'm not going to ask Henderson why he looked that way, and I'm not going to ask any of you boys if you feel that way, but I'm going to tell you that if you do feel that way and can't get over it you had better get out right now and let us get in some smilers with backbone before we have to go into the show.

"Cornelius J. Reilly, Incorporated, is going to sell cars this year. We're going to sell a lot of 'em. We're going to have good business, even if we don't sell as many as we did during our last year—which was extraordinarily big. But we're going to sell cars, and when I say WE'RE going to sell cars I mean YOU BOYS are going to sell cars. And you can't sell cars if you lose all your backbone and go around acting like the star performer at a funeral.

"What our country needs right now is men, men with spines. And what the country needs has got to be furnished by the different businesses and individuals that make up the country, all of which means that this organization is going to furnish its quota of smiles and spines, and we'll do it if we have to enlarge our faces to give this increased production.

"There is no excuse whatever for these long faces. The country is full of money, and it has got to be fuller of money, and it can't be fuller of money unless business makes money. Without business there can be no bullets, no matter what Frank Vanderlip or any one else says. If Frank Vanderlip wants to get a ragged coat as a badge of honor I know where he can get good money for a lot of his dress suits.

"Not only are we going to have good business in the Sennett, but every other man who sticks to the job is going to have good business. And the one big point I want to get to is that we all must TALK business and optimism instead of spreading this gospel of gloom.

"When you talk with the man in the salesroom, on the street, in the barbershop, in his home, or even with your own wife and kids, tell them that business is not going to hell and one reason is that you're not going to let it.

"When a man says he isn't going to buy a new car because of patriotic reasons, ask him how he figures that $1200 sewed up in an old sock is going to help win the war. That money in an old sock is only so much paper—and the sock is going to waste. But if the money is put into circulation it will help feed our hundred million people and keep punch in our fighting boys in France.

"I want you lads when you get up in the morning to stand in front of a mirror and look at yourselves. Smile, damn it, and don't leave the room until you get your face so it will smile. If you can't shock yourself any other way take a cold bath. That'll put a tingle into you, and it's a good plan anyway.

Smile at Your Wife

"Then when you go down to breakfast smile at your wife and kids. And when you say goodbye, say it with a smile. And when you come in in the morning, say Good Morning with a smile to the rest of the boys, and when a prospect comes in the door, greet him with a smile. And when you get near the closing point, don't forget to smile.

"When you hand the street car conductor your nickel, smile. When you talk over the telephone, smile. When you spend money, smile, and if spending hurts you, take a handful of change out and throw it to a newsboy. Do something! Anything! But SMILE!

"The man who can't stand in my show exhibit and smile, can't stay there at all. I'll send him home. And if he can't come back smiling, he can't come back at all. The gloom stuff is done around this place. We can't run a funeral and sell cars at the same time.

"The more we can spread sane good cheer the more business we and all our competitors will have. There's a little old file over in the corner there for dead prospects. Stick your gloom in there and next summer—after you've all made a lot of money—we'll get the old file out and see what's to be done with it.

"And now, boys, please smile for me."

A big beam ran around the circle, whereupon the meeting ended as suddenly as it began.

BOYS

YOU all know Ray Sherman. When he gets out on the road and starts digging around, things start happening right away.

Well, he's out now. Last week he was in Cleveland—and just read over the story of the Cleveland show in this issue. Also he was in Chicago a part of last week.

We're not exactly sure where he's going next week. He may call on you. Sometimes he makes pretty long jumps. So watch out for him.

And watch his Reilly stories, too. Perhaps you may find yourself, or your employees mirrored in one of these stories.

Whatever you do, don't miss reading this one. It's a peach.

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SING IT—AND SMILE

Pack up your troubles in your old kit bag
And SMILE, SMILE, SMILE.

While you've a lucifer to light your fag,
SMILE boys, that's the style.

What's the use of worrying?
It never was worth while, so

Pack up your troubles in your old kit bag,
And SMILE, SMILE, SMILE.

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Drive Your Cars Now

It Will Be Easier Now Than After The First Thaw, About March 1.

TO-DAY it is possible to drive cars away eastward from the Detroit-Flint-Toledo zone practically all winter, excepting for the specially heavy snow of the last few weeks; but when it comes to driving cars westward from the zone to Chicago, St. Louis and Kansas City greater difficulties are met with. At present the roads between Detroit and Chicago are blocked with snow, and several Chicago dealers have had a dozen and in some cases many more cars held at certain towns en route for nearly two weeks. There seem no possibility of getting them released for a week or more.

The present tie-up on drive-aways suggests the necessity of Chicago dealers co-operating with those in cities further west and securing some improvement of the Detroit-Chicago route. It would be a good investment for these dealers to contribute fairly liberally to a plan to have the entire road from the Detroit zone to Chicago improved so that it can be used during all kinds of weather through the early spring and summer. It would pay to secure co-operation with the different states and possibly the different counties en route to have road scrapers, properly grade these highways and have them oiled, or treated with calcium chloride. There is no doubt but what contributions on the part of the motorists would result in co-operation from the highway officials, and it might be possible that a Detroit-Chicago road organization could be formed that would have the interests of this particular highway in view at all times.

Must Work for Good Roads

The dealer who is opposed to assisting in road maintenance or accelerating the movement for the necessity of improved roads is not thinking in war channels. He is thinking of the cost of getting his car from Detroit to Milwaukee before the present war, and not to-day when we are short of freight cars, short of railroad locomotives, and short of men.

To-day *he must think of the cost of not doing business, rather than the cost of doing business.*

He must calculate what it is going to cost him not to have cars to deliver in the selling months when he needs them. If he is going to rely on the railroads he will not have the proper quota of cars at that time. It is not in the realm of possibility to get railroad cars in the zone of congestion which extends from the Mississippi east to the Atlantic ocean at that time. He might as well face it to-day. To-day is the time to plan such a highway improvement.

When a railroad taps a new country it puts down light-weight rails and uses small locomotives and light rolling stock. But when it graduates and becomes a double-track, or a four-track system, it uses the heaviest rails, ballasts its roadbed to the best condition and installs the heaviest locomotives and draws the heaviest trains. It is the volume of traffic that dictates the improvement in roadbed, in rails, in locomotives, and in cars.

Apply the parallel to the motor car driveway, the volume of driveways will be greater in the coming spring than ever before. It is foolish to expect that the old systems will continue to accommodate the volume. It is foolish to use an unimproved highway when it is more economical to improve the highway.

Let us apply the same principle to the case that our armies are applying in Europe. France employs tens of thousands of soldier workmen, constantly repairing the highways so that the motor trucks can carry the great volume of ammunition and food to the front. Not only she improves the roads, but she widens them according to the volume of traffic. It takes men to do such work, but those men are as essential there as in the trenches.

Look at our own business: it is useless to attempt to keep a sales organization or a maintenance organization in St. Louis and not have cars when they need them. The zone of your business has extended under war conditions. If the railroads cannot bring your cars you must go out and get them. Going out and getting it is not enough. You must use the most economical means. This includes an improvement of the highway, particularly such a main truck highway as that from Detroit to Chicago, and perhaps as far west as the Mississippi, with one or two branches leading north and south to such population centers as St. Louis and the Twin Cities.

What Do Drive-Aways Cost?

The cost of drive-aways varies with different dealers. One Chicago dealer declares he is driving his cars overland from Detroit at less than what it costs him for freight on the railroad; another dealer driving a car of no larger size declares that it costs just twice what railroad freight costs. There should not be such a difference. Both seem to have standardized their system of drive-away and are operating on military principles, but there must be a leak in one.

Both admit they would liberally contribute to the movement that would improve the highway between Detroit and Chicago. Both admit that they must have cars for the big spring selling season that is ahead. Both admit their respective factories have not storage room at their plants for more than a 2-day production. It seems to be imperative for the dealer to get the cars as they are manufactured, that is, he must be prepared to drive away cars during February, March and April, in order to keep the factories working at capacity during those months.

Perhaps the dealer will say the factory should provide storage facilities. This might be answered by the fact that up to this war crisis the factories never had any necessity for such storage facilities because they could rarely produce as fast as the dealer wanted the cars. To-day the reverse is the case. The slowing up of retail sales in the last 3 months means that thousands of dealers are not anxious to stock up as they were a year ago, and the manufacturer has not the ground available, in many cases, to even store the machines. It seems certain that the dealer must prepare to drive away on a regular schedule. The best dealers are already doing this. These slack business months are the ones in which to get under way. Do not wait until you are out of cars before you organize your drive-away system.

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The Leader Must Lead

(*Continued from page* 10)

thought of our calling those good officers of ours unpatriotic because they are motorizing every part of the army and putting away the old mule that was the hero of the Civil War. We would criticize them if we did not motorize on every hand. We want our ambulances motorized so that they are more speedy and will get the wounded back to the hospital quicker. We praise our Signal Corps for making faster airplanes. We praise our Engineers Corps for using motor trucks instead of horses. We praise every one in France for using the motor instead of the horse or the mules.

Now, in war, there cannot be one rule in France and another at home.

The policies that are best in one place are best in the other. We must not require our army to move at motor pace in France and move ourselves at snail pace in America.

We must raise wheat at motor pace. We must raise and cultivate corn at motor pace. We must move our grains to the market at motor pace.

Move at Motor Pace

We are unpatriotic if we do not move at motor pace.

Why demand our soldiers to speed up and put up with all of the other sacrifices of war in France and in our cantonments, and we at home go along in our old mule pace methods and not supply enough wheat, enough oats, enough corn, enough potatoes and enough hay and other war necessities?

No, Mr. Distributer, the White Man's burden rests upon you. *A share of the burden of civilization rests upon you.* You must drive this war patriotism into your country dealer. You must drive this war patriotism into your country banker. You must drive this war patriotism into the farmer. You must drive this war patriotism into every business man, into every manufacturer, into every commercial man.

It is not *unpatriotic* to-day for the farmer to buy a motor car. It is not *unpatriotic* to-day for the farmer to buy a motor truck. Thank Heavens, the farmer is nearly getting it under his skin that it is the highest form of patriotism for him to buy a farm tractor. We hope the time is at hand when it will be looked upon as a sign of sloth, of inefficiency of unprogressiveness for a farmer not to own a car, a truck and a tractor.

The country dealer must not lie down in these hours of real need. He has to sell cars. He must sell them. The distributer must stimulate him. If the distributer is to rank as a territorial leader he MUST LEAD.

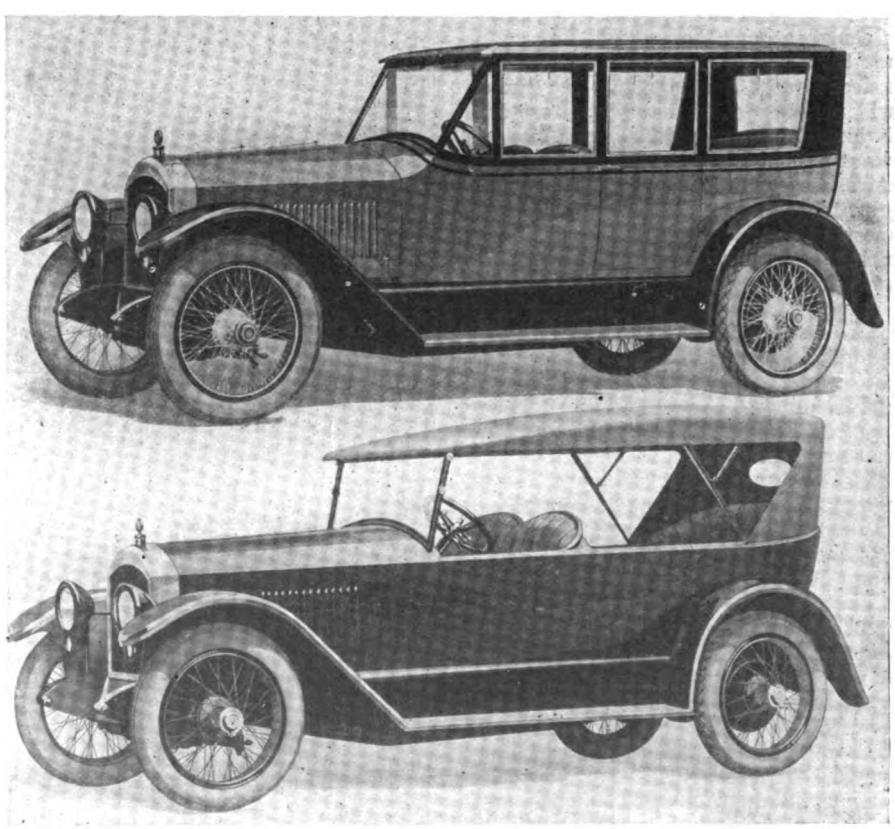
Chicago Reveals Several New Models

Deering, Chalmers, Reo Pan-American, Jordan Comet, Maibohm, Briscoe

DURING the week of the show the new Deering magnetic made its debut at the Congress Hotel. This car is to be produced in 4 different types for the 1918 season, including a 7-passenger road car, an all-season sedan, a 4-passenger sport roadster and a coupe. It was impossible to get the last two ready in time for the show and so only the 7-passenger car and the sedan were exhibited. No definite announcement as to prices has yet been made, but it is understood that the 7-passenger road car will sell at $3,950.

A 6-cylinder engine is used, of the overhead valve type, the valves being enclosed and the cylinder heads removable. The engine was specially designed for use in this car by George P. Dorris, one of the pioneers of the American automobile industry. It has a bore of 4 and a stroke of 5 in., and though its S. A. E. rating is only 38 hp., actually, it develops 70 hp. In order to eliminate all chance of whipping, both crankshaft and camshaft are supported in 7 bearings. A hot spot type manifold is employed, which is said to be of such design that although it ensures thorough vaporization of the fuel it will not expand the air to such an extent as to excessively reduce the volumetric efficiency. The engine, of course, has been especially designed for the use of the Entz magnetic transmission system.

A plain pressure feed lubricating system has been adopted for the new engine. All bearings, including those on the crankshaft, in the connecting rod and on the wrist pin, as well as the cylinder walls, are positively lubricated by pump-



This good-looking car is the new Deering-magnetic which has a Dorris engine and is fitted with the Entz electric transmission

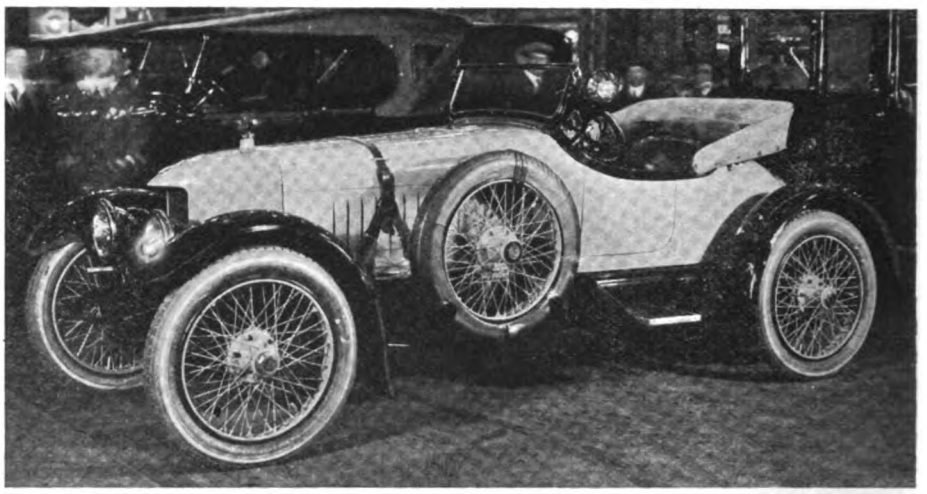
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revolving parts returns to the reservoir through a filter and is used over and over until its lubricating properties have deteriorated. A circulation indicater located on the instrument board gives a visible indication of the functioning of the oiling system.

As the new Deering magnetic is in the high-priced class, much attention has, of course, been paid to body design. Both the 7-passenger road car body and the all-season sedan are designed by Karl Martin. The road car is finished in Mist O'Marne blue, with wire wheels, fender gas tank and running gear painted red for contrast, and the upholstering is in black hand-buffed leather. The backs of the front seats extend above the center cowl, making for increased comfort and individuality of appearance. On the instrument board are mounted two ammeters, a speedometer, an oil gage, lighting switches and a combination dash and inspection lamp. The equipment of the Deering Magnetic includes a Maxim silencer, a Moto-Meter, an engine-driven tire pump and 33 x 5 in. Goodyear cord tires on Rudge-Whitworth wire wheels.

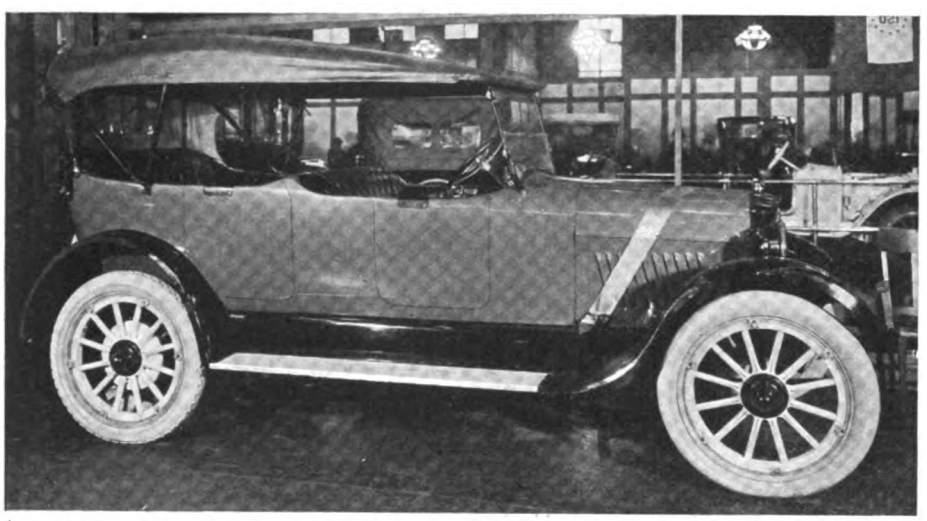
As regards the control devices, the throttle and spark levers are located on the steering post just below the steering wheel, on which the control lever for regulating car speed is carried. The emergency brake and reversing levers are located to the left of the operator, thus leaving the driver's compartment unobstructed.

The 5-passenger sedan, with two auxiliary chairs of the disappearing type, is finished in two-tone mole skin with black fenders, wheels and running gear. The upholstery of mole skin velour mohair extends only to the window line, the interior above that point being painted in a harmonizing shade and the flexible, bevel-edged roof is provided with a beamed ceiling to eliminate rumble. In summer time the glass may be dropped into the body, and seat covers used to protect the interior against dust and rain.



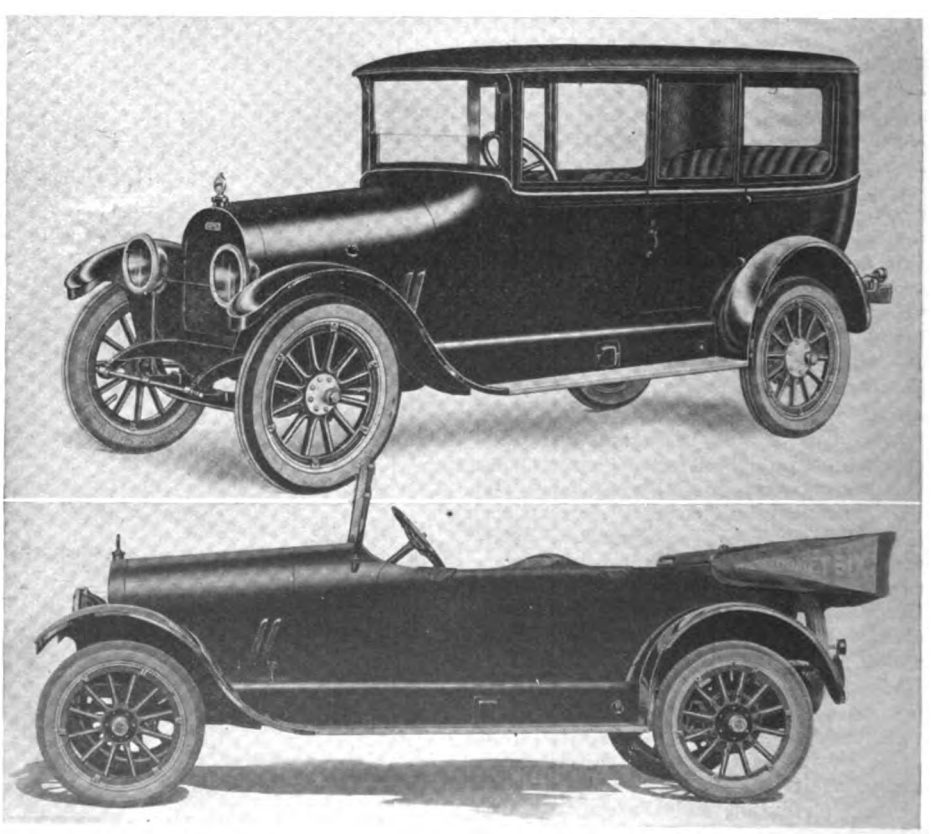
Above—This snappy looking roadster is a new design that was exhibited by the Chalmers company. It is what might be termed an ultra-sport model

Below—The new Reo Four has a somewhat refined body and is lower than the previous model owing to a new spring suspension



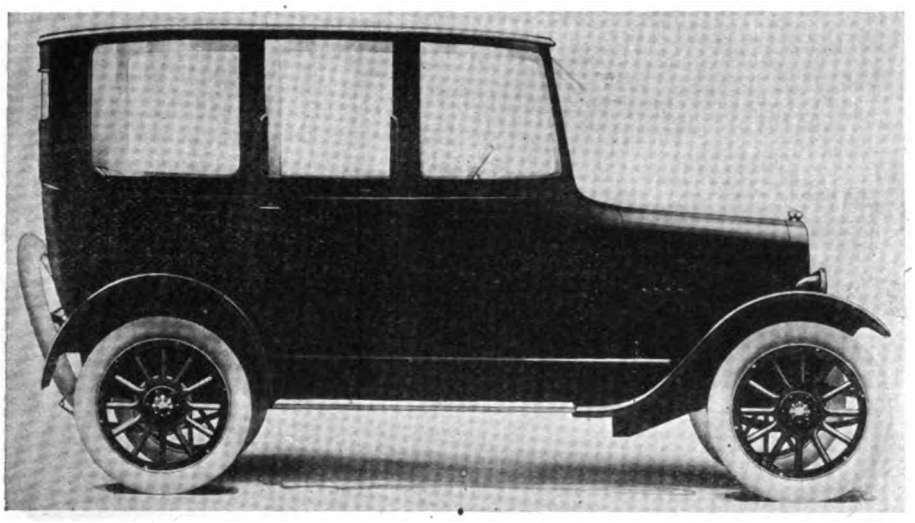
Comet Six at $2,285

THE Comet, which is made by the Comet Automobile Co., Decatur, Ill., is a six-cylinder car developing 50 hp. at approximately 2400 r.p.m. The cylinders are cast in block. Bore and stroke are 3½ x 5 in. Lubrication is by combination force feed and splash with individual constant level trough for each crank. Intake ports cast in the exhaust manifold provide for preheating the gas mixture before entering the cylinders. Cooling is by a centrifugal water pump with large cellular radiator and ample water-



Here are two new Comet models

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Briscoe had on view an entirely new sedan model, which, from its appearance gives the suggestion of a utility car, light on its tires, quick to get around and having an unusual expanse of windows

jacketing. A roller bearing fan with five double blades is used.

Starting and lighting are by the Dyneto two-unit system with Bendix drive to the flywheel. Ignition is Delco. A multiple-disk, dry-plate clutch is used, and the three-speed gearset is in unit with the engine. Two universals take the drive through a tubular propeller shaft to the rear axle.

The front axle is an I-beam type with Elliott knuckles. A three-quarter floating rear axle is fitted, the gear ratio of which is 4½ to 1. Hyatt and Bock bearings are used in pinion shaft, differential and wheels. Brakes are internal and external on rear wheel drums. Semi-elliptic front springs, 2 x 36 in., and cantilever self-oiling rear springs, 2½ x 50 in., are used.

The frame is pressed steel, heat-treated, with a kick-up over the rear axle. All cross members, gussets, hangers, etc., are hot-riveted. Wood wheels with 33 x 4 tires are fitted; wire wheels are optional. Firestone demountable rims are stock. The wheelbase is 125 in., and a road clearance of 10½ in. at the lowest point is given. A 22-gal. gasoline tank is mounted under the frame in the rear with a sight gage and large end filler.

Standard equipment includes headlights with dimmers, cowl light and tail light, windshield searchlight and trouble lamp, electric motor-driven horn, locking switch, Stewart-Warner speedometer, ammeter, etc. The body is a streamline, double-cowl type with high body sides and upholstery in Chase's long-grain, bright finish Galloway. The windshield is a slanting, rain-vision and ventilating type, and the top is of Never-Leak, one-man with Jiffy curtains and slip cover. Standard color is blue with black radiator, fenders, hood and skirts. The price is $1,285.

Maibohm New Six

THE Maibohm six-cylinder, six-passenger sport phaeton is one of the few entirely new models revealed at the Chicago show. This car is the product of the Maibohm Motors Co., Racine, Wis., which has hitherto specialized on a four-cylinder sport roadster. The six on exhibition is finished in powder blue with khaki top.

The car has a valve-in-head 3⅛ x 4¼ in. Falls engine. It has a detachable cylinder head. A Wyman & Gordon counterbalanced crankshaft, 2¼ in. in diameter, with three 2-in. bearings, is used. Valves are 1⅛ in. in diameter and lift 9/32 in. The valve adjustment is at the cylinder head and directly accessible. The Stewart vacuum tank is supported on brackets in an elevated position so that there is no interference with the adjustment of any of the valves. The engine is rated at 23.44 hp. but develops 40.6 hp. at 2290 r.p.m. Its maximum speed is 3510 r.p.m.

On the left side of the engine are located an oil gage and filler, the electric generator driven through a self-aligning universal-joint type coupling and the ignition distributer, the latter an independent unit on the rear deck of the crank case, thus permitting a simple wiring layout. There is also a simple fan belt adjuster. Both manifolds are cast integral with the cylinder head, making for simplicity of pipe connections.

An instrument board plate carries all necessary connections and is installed with four wood screws. The equipment consists of a Wagner two-unit, six-volt starting and lighting system, Atwater-Kent ignition, Willard battery, Stromberg carbureter, Perfex radiator for thermo-syphon cooling, Borg & Beck clutch and Mechanics three-speed transmission, the latter forming a unit with the engine. By overhanging the lever of the transmission they are brought within easy reach of the driver. A worm and pinion speedometer drive is enclosed in the transmission case and drives the Stewart 60-mile speedometer.

The storage battery and the adjusting turnbuckles on both brake rods are located directly under the front floor boards. The battery is thus easily removed from its steel cradle, and the large turnbuckles make brake adjustment a simple matter.

Hotchkiss drive is used. The power is transmitted through two 4½-in. universal joints and a tubular propeller shaft. Both sets of brakes are lined with asbestos fabric and act on rear wheel drums, 12 x 2½ in., internally and externally. A Maxim silencer is fitted and the steering gear is of the Jacox, split-nut type. A 17-in. notched-grip hand wheel carries the spark and gas quadrant and horn button.

The rear axle is full floating, with 1⅛ in. shafts, a Brown-Lipe-Chapin differential and Hyatt roller bearings. Two Bock taper roller bearings are in the third member, which has an external adjuster. The gear ratio is 4.5 to 1. The front axle is a drop forging of 2-in. I-beam section.

All springs are semi-elliptic, the front ones being 36 x 1¾ in. and the rear ones 49 x 1¾ in. All three cross girders of the frame are straight. Wheels are artillery type with Stanweld rims. Houk wire wheels cost $100 extra for the set of five. The tire equipment is Goodyear, 32 x 3½ in. The wheelbase is 115 in., the road clearance a full 10½ in., and the complete car weighs 2375 lb. The price of both four-passenger and six-passenger touring models is $975 at the factory. Finish is optional with the purchaser.

The six-passenger job is long, low, narrow and rakish in appearance. The body does not project into or over the rear fenders, which extend a full 10 in. on each side. There are two folding auxiliary seats in the tonneau. The khaki top is of Victoria shape. Gypsy curtains completely cover the top bow sockets, and have a round, bevel-edge plate glass curtain window in each side. There is an oval plate glass window in the rear.

Auburn Sport Model

ONE of the new cars at the show is the Auburn Sport Model, equipped with a six-cylinder engine and mounted on a 120-in. wheelbase. This car is an unusually roomy four-passenger and has the front seats divided by a wide aisle. The upholstery is leather, done in the flat French pleat style. The straight-line body design has the windshield placed at quite a pronounced angle. The chassis follows the general Auburn construction with such features as semi-elliptic springs, the unit power plant, etc. The wheels of this car are wood, fitted by 32 x 4-in. tires. The Auburn Sport Model is offered in three striking color schemes, ash gray body, fenders and wheels, Auburn maroon body and wheels with black fenders, royal blue body and wheels also with black fenders. Good attention has been paid to details. There is a locker under the rear deck to which access is gained by removing part of the rear seat upholstery, which comes out in a rectangular block form. Thus it is possible to conveniently carry packages in this compartment. The price is $1,395. To meet the demand of those who want extra large power and high speed the Auburn Sport Model is built on a large

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chassis, with 131-in. wheel base. Price, $1,685. These cars are products of the Auburn Automobile Co., Auburn, Ind.

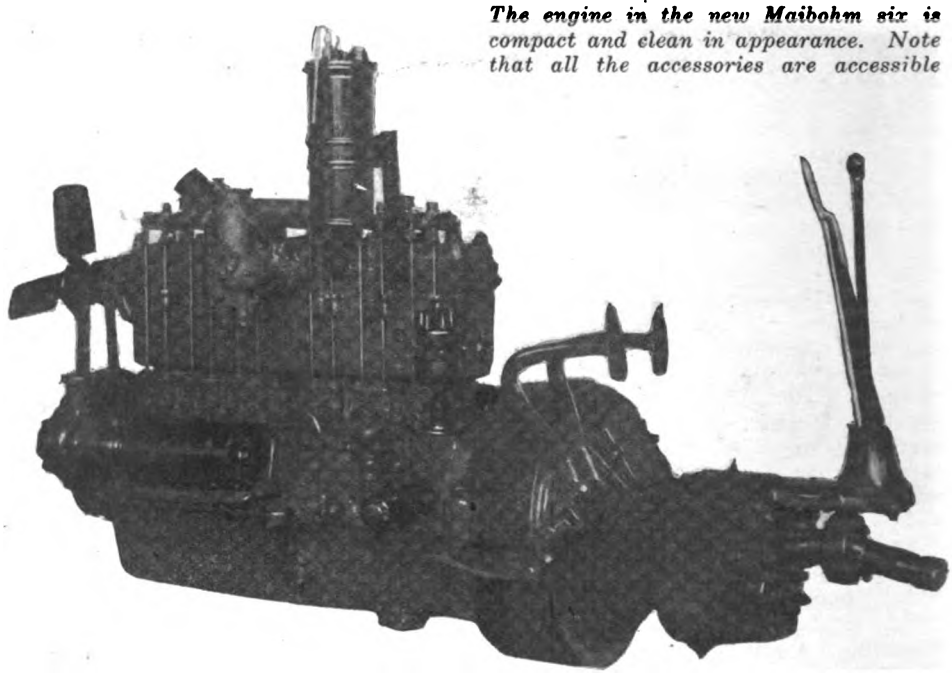
Three Hackett Models

THE Hackett Motor Car Co., Jackson, Mich., exhibits three models, all using the same chassis. They are two-passenger roadster in olive green, five-passenger touring in brown, and collapsible sedan, finished in maroon. This concern exhibits one of the new Guy rotary valve engines with which the Hackett line is to be equipped later on. The valves are disks with only one surface in contact with the seat, requiring that only one surface be kept tight. For this reason also the valve is free to expand and compress without danger of binding, it is claimed. The valve driving mechanism is by means of spur gears which are attached directly to the stems of the valve and driven by a small master gear. The latter drives the two middle gears attached to the two middle valves, and these in turn operate the outer cylinder valves by being in mesh with them. The disks which constitute the valves are cut with eight ports, which means there are four intakes and four exhausts per cylinder. There are only three working parts to each cylinder. The gears operate in a bath of oil and are noiseless. The valve driving mechanism operates 1-8 crankshaft speed, and due to the rotating motion of the valves the latter are said to be self-grinding, thus making them carbon proof. The top of this engine has an aluminum head plate, the removal of which exposes the valves. The Hackett chassis has a 112-in. wheelbase and has a unit power plant. The engine in the present model is a four-cylinder design, having a bore of 3¾ in. and stroke 4½ in. Hotchkiss drive is used. The gears in the rear axle are of the bevel type. Wood wheels are standard equipment, carrying 32 x 3½-in. tires. Connecticut ignition is used. Starting and lighting equipment is the Dyneto two-unit system. The radiator is cellular and cooling is by thermo-syphon. The gearset is a three-speed Grant-Lees. The drive to rear axle is through two universal joints. The equipment on the Hackett consists of a one-man mohair top sloping windshield, trouble light, tools, pump and jack. There is a neat walnut instrument board in the cowl, carrying lighting and ignition switches, ammeter, speedometer, oil indicator, carbureter, adjusting dial, instrument light and trouble light plug.

The roadster and touring car sells for $885, while the all-season car or open sedan is priced at $1,165.

Elgin Six Sedan

THE Elgin Six Sedan exhibited by the Elgin Motor Car Corp., Chicago, is of the Springfield type, having two doors, one on each side, and constructed so that it can be entirely closed for winter or open for summer. The chassis is the same as used on previous models. The interior is upholstered in Bedford Cord, up to the belt line with a lighter weight material above. Ample room has been provided for seating five people. The front seats are the bucket type, with passageway between. The cushions are covered with gray striped whipcord without buttons. Plate glass is used in the doors and windows. Silk curtains are provided for rear and rear quarter windows. The steering wheel can be adjusted so as to bring it out of regular driving position, providing plenty of room for the driver in getting to and from his seat. The floor is covered with brussels carpet and held in place by snap fasteners. There is an electric dome lamp located centrally for lighting the interior. The Elgin Six Sedan is regularly finished in black with silver striping on the body and wheels. The price of this car is $1,645.



The engine in the new Maibohm six is compact and clean in appearance. Note that all the accessories are accessible

Reo Light Four

A NEW car shown for the first time at the Chicago show is the light four Reo, offered in both five-passenger touring and three-passenger roadster models by the Reo Motor Car Co. The bodies of these follow the latest tendency in design and have the top sides tumbling home. Both cars use the same chassis, which has a 120-in. wheelbase. The frame is of the conventional pressed steel type, mounted front and rear on semi-elliptic springs. The rear springs are especially long, being 54 in., with 10 leaves. The engine is rated at 27 2/10 hp. and has a bore and stroke of 4⅛ x 4½ in. The cylinders are cast in pairs with integral heads. Valves are of the pocket type, with inlet and head and exhaust on right side, which is the conventional Reo practice. The main bearings are babbitt and the bearings are adjustable from the outside. The camshaft is forged integral and driven by helical gears. The engine is four-point, suspended on a sub-frame. The carbureter is a Johnson, fitted with steering column air control. Ignition is by jump spark, supplied by Remy generator, which also furnishes current for lights and starting. The latter system is of a six-volt type, using a Willard 100-amp.-hr. storage battery. Cooling is by gear-driven centrifugal pump.

From the engine the drive is through a dry plate clutch and three-speed gear set. The drive is Hotchkiss, the gear reduction from engine to rear wheels on high being 4.3 to 1. The rear axle is semi-floating and driven by spiral gears. The steering gear is on the left side, with adjustable bevel gear and internal sector and pinion type reduction. The diameter of the steering wheel is 18 in. The standard color is marine blue body, cream wheels, and black fenders and running gear. The five-passenger touring has a one-man top with curtains and slip cover. The upholstering is of leather over Marshall cushion springs. Removable lights in the rear of the top provide for ventilation and easy renewal of celluloid. The roadster body has three-passenger capacity on one seat. It is furnished with foot-rail and detachable curtain supports on both doors and has extra large luggage space, with a door at the rear. The windshield is slanting and fitted with rubber window strips at center and bottom. The tank capacities are: Gasoline, 18 gal.; water, 3¼ gal.; oil, 3 qts. Regular equipment is furnished, consisting of speedometer, ammeter, tools, etc. The price of the touring or roadster model is $1,225.

Three Pan-Americans

THE Pan-American Motors Corp., Decatur, Ill., exhibits three cars and a chassis. Beside the regular five-passenger touring car there was a four-passenger close-coupled car and a four-passenger sedan. All of these models use the same chassis, which is powered with a six-cylinder Pan-American Rutenber engine. The cylinder size is 3⅛ x 5. The standard wheelbase is 120 in. and the cars have 10½ road clearance. Hood regularly fitted, but the cars shown all

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carry Houk wire wheels, which come extra. Gasoline is served to a Rayfield carbureter by a Stewart vacuum tank, drawing from a 20-gal. tank on the rear of the car. The main tank has a large filler cap with gage and drain plug at the bottom.

The frame has a double kickup at the rear and is reinforced by four independent cross members, which with the rear engine support are said to eliminate all frame torque, body squeaks, and climbing hood. Springs are all semi-elliptic, with the rear 58 in. long, underslung and suspended directly under the frame. There are wick oiling devices for all spring shackle bolts, also for the steering knuckle pins. The drive from the engine is through a Borg & Beck clutch to a Warner gearset in unit with the engine. The propeller shaft is tubular and fitted with two universal joints. Both front and rear axles are Timkens fitted with roller bearings throughout. The brake drums are 14 in. in diameter and of the conventional type. The steering gear is a Warner having an 18-in. corrugated walnut wheel, with horn button and control levers on top. Tires are 33 x 4½ in. The electrical equipment consists of a six-volt Gray & Davis system for starting, lighting and ignition. The storage battery is a Willard. The head lamps are fitted with dimmer bulbs and there is a mahogany cowl board containing lighting and ignition switches, fuse box, oil gage, ammeter and speedometer dials, carbureter control and dash lamp. The head lamps are fastened directly to the fenders with a liberal tie rod with license clamps. The fenders are full crown type bolted together as a unit. The purchaser is given a choice of four colors, Pan-American maroon, gun metal gray, Pan-American blue and a new military brown. The price of the Model G is $1,500.

Dodge Town Car

THE Dashiel Motor Co., Chicago, exhibits a town car body on a regular Dodge chassis. This body was designed primarily to meet the demand for a neat appearing and medium priced vehicle of that type. The body is finished in red up to the belt line, with the remaining parts black. The interior was upholstered in a very thorough manner.

New Chalmers Speedster

A CAR which attracts unusual attention was the raceabout exhibited by Chalmers Motor Co., Detroit. This car was a duplicate of the one in which Joe Dawson established a new 24 hr. record at Sheepshead Bay, N. Y. last fall. Essentially the chassis of this car is the same as used on all Chalmers models, with the exception that the engine is placed a little farther back. The body of this car is made of aluminum and fashioned after such a manner to reduce wind resistance as much as possible. The car shown is finished in yellow with black running gears and wire wheels. An option is given as to the color, inasmuch as only 25 of these cars are to be made. One of the novel features on this car is the way in which gasoline is carried to the carbureter. The main tank is located under the rear deck, while a smaller tank feeds by gravity to the carbureter. In order to get the fuel from the large tank to the smaller, a nickel-plated hand pump is placed on the instrument board in front of the passenger seat and by a few strokes of this pump sufficient pressure is put into the main tank to force the gasoline through the carbureter. The standard gear ratio is 3 to 1 and it is claimed the car can attain a speed of 80 m.p.h. There is a metal shield over the radiator tapered in such a way to reduce the amount of air striking the cooling surface. Equipment includes six wire wheels, the extra two being mounted one on each side of the car. There are no running boards, the fenders simply following around the wheel and ending just below the frame edge. One of the new equipments on this car is a glass-protected card attached to the instrument board carrying the signature of Dawson. This card sets forth the fact that the car is an exact duplicate of the one which performed at New York as stated above. There is also a unique khaki top which when up blends well into the general lines of this speedster design.

Larger Jordan Sport-Marine

A NEW show model is the Jordan Suburban, which is really a larger edition of the Jordan Sport-Marine, but with seven-passenger capacity. It is mounted on the standard 127-in. wheelbase, but the body design is so worked out that a heavily raked steering column is used. The chassis is 2 in. lower than the standard Jordan chassis, accomplished by improved spring suspension, and the body is 3 to 4 in. lower. It is sold in two color options, namely, Liberty blue with black running-gear and Brewster green with black running-gear. As a complete seven-passenger job it sells at $2,375, this figure including complete equipment, consisting of 33 x 4½ Firestone cord tires, wood wheels, Burbank top, clock, tonneau light, traffic bumper, Macbeth lens and extra tire and rim. Production will begin Feb. 1.

Many Chicago Show Dinners

CHICAGO, Jan. 26—The Chicago show is more prolific in dealers' meetings and dinners than the New York show was, the following having been scheduled to date. There probably will be others arranged before the week is over.

Chicago Automobile Trade Association luncheon, addressed by E. LeRoy Pelletier, Lexington Hotel, Jan. 26.
Cole Motors Co., luncheon at Congress, Jan. 30.
Franklin Auto Co., luncheon at Congress, Jan. 30.
Elgin Motor Car (dealers) luncheon at Sherman, Jan. 30.
Elgin Motor Car Co. (parts mfrs.), luncheon at Sherman, Jan. 30.
Illinois Oldsmobile Co., luncheon at Congress, Jan. 30.
Velie Motors Co., luncheon, Hotel Sherman, Jan. 30.
Dodge Bros., luncheon, Blackstone Hotel, Jan. 30.
American Truck & Airplane Co., banquet at Morrison, Jan. 30.
Nash Distributors, banquet at Sherman, Jan. 30.
Reo Motors Co., luncheon, Congress, Jan. 31.
Paige-Detroit Motor Car Co., luncheon, Congress, Jan. 31.
Harry Newman-Stratton Co., luncheon at Congress, Jan. 31.
Hupp Motor Car Co., luncheon, Blackstone, Jan. 31.
S. A. E. War Dinner, Morrison Hotel, Feb. 1.
Federal Export Corporation, headquarters.

Salon Shows Body Styles

CHICAGO, Jan. 29—Chicago's Automobile Salon opened Monday in the Elizabethan room at the Congress with exhibits of special body creations by White, Cunningham, Rolls-Royce, Daniels, Apperson, Biddle, Roamer, Deering-Magnetic, Simplex and Locomobile. The bodies are by Rubay, Cunningham, Brooks, Daniels, Apperson, Caffray, Keystone, Martin, Holbrook, Healy and Lock. Prices range from $3,500 to $14,000, the latter being for a Rolls-Royce touring cabriolet. The show, by special dispensation, remained opened both Monday and to-day, despite to-day being a closing day for theaters. The show at the Coliseum was closed Monday, but the Chicago Automobile Trade Association notified members that service stations and salesrooms might remain open under special Government order.

Hayes Heads Jackson Munitions

JACKSON, Jan. 28 — Clarence B. Hayes, of the Hayes Wheel Co., has been elected president of the Jackson Munitions Co. A strong directorate has been brought together, including O. W. Mott, C. C. Bloomfield, Dean Kimball, B. M. Delameter, M. S. Potter, Edward Frensdorf, Watson R. Smith, John W. Miner and A. G. McBurney. The company is capitalized for $500,000.

Deeds is Promoted

WASHINGTON, D. C., Jan. 28—Col. E. A. Deeds, in charge of the equipment division of the Signal Corps has been promoted to be assistant to the Chief Signal Officer and now has his office headquarters with the Chief Signal Officer. Col. R. L. Montgomery, formerly the assistant to Col. Deeds, has been promoted to become the head of the equipment division and is assisted by W. C. Potter, banker of New York City, a civilian appointed as assistant to Col. Deeds.

Lilly is Embarkation Director

WASHINGTON, D. C., Jan. 28—Brigadier General Chauncey B. Baker of the Quartermaster Corps has been relieved of certain duties connected with embarkation by the appointment of D. M. Lilly of New York as Director of Embarkation. General Baker is the Chief of Embarkation in addition to heading the truck transportation work, which latter is not in any way affected by the appointment of Mr. Lilly.

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"Business" the Slogan of Buffalo War Show

Dealers Report Many Sales and Prospects—Expect Big Rush in Early Spring

BUFFALO, Jan. 26—Buffalo's first war-time show made good. Held in the Broadway Auditorium, the largest hall of which the city boasts, from Jan. 22 to 26, inclusive, it was not the most interesting and brilliant socially nor the best attended in total number of admissions for the week, but it certainly was the most business-like show ever held here. What it lost in the sight-attraction of show features the exhibition gained in the newer appreciation of the automobile as an essential instrument of commercial, business and social life.

The dealers who had exhibits at the show declare it was a success. All reported sales and all listed the names and addresses of scores of prospective purchasers.

More than the ordinary amount of worries attended the organization of this sixteenth annual exhibition of automobiles, trucks and their accessories. Just before the show was decided upon there swept across the country a feeling that the automobile was an unnecessary purchase during the war and there was an inclination to regard the automobile industry as among the non-essentials, a feeling that was gradually overcome by the realization of the value of the use the automobile plants, either in whole or in part, for the manufacture of the motors and other parts of the 20,000 airplanes the United States proposed to build in the first year of the war. The Government then began to encourage the making and buying of automobiles and the motor truck was looked to as offering relief from the rapidly-congesting railroad situation.

Mason B. Hatch, president of the Buffalo Automobile Dealers' Association, and his associate officers and directors decided to face the situation as it was expressed locally and hold the show. The public caught the new meaning of the automobile. They began to buy at the local salesrooms. The show then promised to be a record-breaker.

At the last moment before the opening of the show the Garfield war-time vacation order was imposed and it was necessary to fight hard for the privilege of holding the show. The privilege was granted, however, with the concession that there would be a postponement of the opening date from Monday to Tuesday.

While the older makes of cars came in for all the attention they deserved, unusual interest was displayed at the show in the exhibitions of new cars, such as the Holmes, the Standard, the Elgin, the Stanley steam and the remarkable novelty body on a Chalmers chassis, the submarine model.

The little caterpillar crawl farm tractor from a Cleveland firm held the interest of many, particularly, of course, those to whom its utilitarian purpose appealed. Prospects of big business when weather will permit of thoughts of operation of the farm tractor were claimed by the exhibitor.

Accessory exhibitors report good business from the show, though exhibitors were forced to admit that the minds of present and prospective car owners were less than ever directed to the fads and "wrinkles" in their line of goods.

"There should be a splendid spring business as a result of the exhibition," said John J. Gibson, the secretary of the dealers' association, the closing night, and he reflected the optimism of the other local dealers.

Green Heads Denver Dealers

DENVER, Jan. 17—The annual meeting of the Denver Automobile Trades Association, just held, resulted in the election of the following officers for this year:

President, Fred L. Green, of the O'Meara-Green Motor Co.; first vice-president, J. C. Hadley, of the Auto Accessory & Speedometer Co.; second vice-president, Henry J. Arnold, of the Altitude Oil Co.; treasurer, Ralph Hay, of the Peters-Tucker-Hay Rubber Co.; secretary, Edgar W. Johnson, who succeeds himself. The first three of these officers and the following were also elected directors for two years: P. V. Downey, of Downey's Garage; Hugo Mann, of the Mann-Aldrich Carriage Co. The four hold-over members of the board of nine directors are: B. K. Sweeney, of the B. K. Sweeney Electrical Co.; C. S. Norton, of the Norton-Buick Auto Co.; L. R. Bach, of L. R. Bach & Co., Exide battery distributer, and Treasurer Hay.

A substantial growth in membership and activities for improving trade conditions and a successful fall show were among the year's accomplishments outlined in Secretary Johnson's report. The membership has now reached the 150 mark, and the association's influence is felt throughout a wide trade circle. The cash basis has recently been taken up, and a good start is being made in this direction.

Organized three years ago as the Automobile Trades Association of Colorado, with plans for State-wide development, the body later became a bureau of the new Denver Civic and Commercial Association, which was formed by reorganizing and consolidating several commercial bodies.

Hydraulic Gearshifts Coming

EAU CLAIRE, WIS., Jan. 26—The United States Gear Shift Co. has been formed here with $1,500,000 capital to manufacture a hydraulic gear shift which is the invention of L. A. Laursen. It is proposed to erect a factory here and to commence production within six weeks. The device is intended for application to existing cars without extensive alterations.

Show Time Changes Baltimore Motor Row

Indications of Dealers' Faith in Future of Industry—Optimism Reigns

BALTIMORE, MD., Jan. 28—Quite a few important changes have taken place along motor row in Baltimore just as the show got under way. It involved changes of agencies and also the advancing of some salesmen to important positions during the past week. Some steps taken locally show very plainly that motor car men of this city have faith in the future of the industry and are not worried about doing business, but are going out and getting it.

One of the most important local announcements was that of the promotion of Earle L. Williams as general manager of the Packard Motor Car Co. of Baltimore. Williams is the youngest Packard manager in the United States. He started in with the Mar-Del Mobile Co. in 1911 as a stock clerk.

One of the biggest deals affecting the distribution of motor cars in this section is that announced by the Del-Mar-Va-Nach Co., as southern distributer of the Nash Motors Co., and the firm will distribute in Maryland, Delaware and Virginia and also expects to obtain the District of Columbia about June 1. It has obtained temporary quarters at 126-188 West Mt. Royal Avenue, pending the signing up of a local dealer. E. McNeal Shannahan of Easton and Graham Gunby of Salisbury have formed the new company.

The Rice Motors Co., Baltimore, that has handled the Jeffrey and later the Nash line for some years will now devote its time to the Simplex and the Clydesdale motor trucks, and its plant has been enlarged to handle truck service. The Wandeyne Co., Inc., with headquarters in Washington, has come into Baltimore and has taken over the business of the Murray Motor Car Co. here to handle the Murray line.

The Hummer Motor Sales Co. will handle the Lexington line in this territory, succeeding the Hampden Auto Sales Co., E. E. Wilmer of that company having joined the forces of the Seitz Auto Co.

H. H. Juelg, for many years identified with the piano business in Baltimore and Washington, has joined the sales force of the Howell Motor Co. The Howell company has also taken on the Woods Dual Motor.

J. Wilfred Smith, who has been handling the Monroe line and also conducts a garage on Morton Street, will leave next week to enter the Royal Flying Squadron, going to Canada. His wife will continue to look after the business.

William E. Duck, Jr., of the local Firestone Truck Tire sales force and son of W. E. Duck, local Winton manager, will leave with Mr. Smith to go into aviation.

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The Seitz Motor Co., which handles the Velie passenger line and the Service truck, has become state distributer for Troy trailers.

The Zell Motor Car Co., handling the Peerless and Chalmers, has also decided to handle Peerless trucks.

F. S. Bliven, president of the Standard Motor Car Co., Cadillac distributer, has become distributer for the Cleveland tractor.

The Monumental Motor Car Co., Kissel distributer, has added the Hurlbutt motor truck. The Monumental company also announces the taking over of the Jenkins Garage as a service station.

Louis E. Lambert of the Lambert Automobile Co., Hudson distributer, showed his faith in the future industry when he announced last week that he had decided to put up a fine service station in the Northwestern section of the city. This station is located in one of the best residential sections of the city and near the best traveled route of the city.

Danner Heads Pan-American

DECATUR, ILL., Jan. 26—After a bitter conflict for control of the Pan-American Motors Corp., Edward Danner was chosen president and a friendly board of directors elected. Early in December A. H. Wyatt, the former president, was removed by the directors on the charge of alleged extravagance in the management of the company. The winning ticket, with Danner as president, comprises the following board of directors: E. W. Danner, J. E. Strohm, W. A. Phares and C. V. Morse, all of Decatur; A. A. Duplissis and J. K. Gumpper, both of Chicago, and Thomas Bemis, Indianapolis.

Carlisle Tire Distributer in Seattle

NEW YORK, Jan. 24—In an item which appeared in a recent issue it was inadvertently stated that the Pacific Tire & Rubber Co. is distributer for the Carlisle Cord Tire Co. in Los Angeles. This should have been Seattle, Wash. The Geo. W. Eno Rubber Co. is the Carlisle representative in Los Angeles.

Savannah Added 897 Car Owners in 1917

SAVANNAH, GA., Jan. 26—According to the registration of state numbers of motor cars with the clerk of council there are 897 more owners of automobiles in this city this year than there were in 1916. The total registration for 1917 is 2310 cars, while only 1413 were registered in 1916.

The number of motorcycles registered in 1917 was 87, while the registration for 1916 shows a total of only 55.

St. Louis Closes from 7 p. m. to 7 a. m.

ST. LOUIS, Jan. 28—The first fuel order affecting the local motor car trade was issued last Thursday, when it was expressly ordered that all motor car and accessory salesrooms must be closed from 7 p. m. until 7 a. m. The order covers garages and filling stations. In case of garages with established all-night trade, permits can be obtained from Robert E. Lee, secretary of the associations

Won't Put Industry On Losing Basis

Garfield Tells Committee of Workers He Has No Such Intention —Postpone Action 10 days

WASHINGTON, Jan. 25—Dr. Harry A. Garfield, Fuel Administrator, has no intention of placing the automobile industry, or any other industry, in a position where it will have to be operated on a losing basis. This much was brought out at a conference yesterday between the Fuel Administrator and members of the boards of directors of the N. A. C. C. and the M. A. M. A.

Practically 90 per cent of the automobile industry was represented at the conference, which had been called by Dr. Garfield in order to ascertain the essential character of the business with a view to reducing coal deliveries and thus curtailing production by that percentage which was deemed not strictly essential.

After the matter was thrashed out, and after it was pointed out to Dr. Garfield that the industry already has been curtailed about 30 per cent, due to the drop in demand; and that the industry is now engaged in doing about $600,000,000 worth of government work with more in sight; and that this work will require the careful maintenance of present organizations and methods, it was decided to do nothing for 10 days.

A committee was named composed of John F. Dodge, W. C. Durant, John F. Willys, C. C. Hanch, C. H. Pelton and the members of the Automobile Industries Committee, which will again take up the matter with the Fuel Administrator. Whatever arrangements are made will be first submitted every member of the industry for final approval.

Spokane Dealers Organize

SPOKANE, Jan. 26—Representatives of practically every automobile house in the city attended the banquet inaugurating the Spokane Automobile Dealers' Association, which was organized here recently. Those not able to be represented sent greetings or some expression of their approval of the new organization. Harry Twitchell of the John Doran Co., Packard and Hudson distributer, was the unanimous choice for president.

Around the banquet table 32 were gathered. The banquet was held at the Davenport Hotel, and among those present were: E. B. Snyder (King), John Doran and Harry Twitchell (Packard and Hudson), H. M. Eastman (Cadillac and Hupmobile), E. C. Finlay (Buick), D. D. Skinner (Elgin and Stearns), W. W. Winterson (Winton), R. L. Strickle (Oldsmobile), W. H. Barnes (Mack trucks), D. E. Ahrens (Stephens), O. E. Logan (Chalmers), R. L. Borgardus (Spokane Auto Market), Frank A. Vogt (Sterling and Gary trucks), Geo. W. Armstrong (Armstrong, Barclay Auto Co.), D. F. Batcheller (Studebaker), H. C. Farnham (Stutz and Columbia), H. Berg and P. W. Lynch (Automobile Clearing House), Guy E. Riegel (Dodge), A. C. Salnave (Paige), A. M. Highhouse (Crow-Elkhart), C. P. Brewer (Saxon, Cole, Westcott), T. J. Riley and John Coulton (Chevrolet and Chandler), George Beverly (Moon and Scripps-Booth), Floyd J. Logan and P. C. Gartley (Maxwell), Thad. S. Lane, president Inland Auto Club; Fred Alspaugh, treasurer of the new dealers' association.

Nashville Dealers to Do Business on Cash Basis

NASHVILLE, TENN., Jan. 26—The Nashville Automobile Dealers' Trade Association has adopted the cash basis in an endeavor to make business conditions better and permit it to be carried on with the present capitalization. The dealers first considered the advisability of raising the prices in their shops and garages and of changing their organization in various ways. They found that their expenses were greater than ever before and that their present capital was being worked to the limit. Adding capital would only serve to make their expenses more; hence, the decision to do business only on a cash basis. Full-page newspaper advertisements were used to make this decision known to the public, bringing out the above-cited facts. The following are the dealers that have adopted the cash basis:

Broadway Motor Co., Burton Auto Co., Chalmers Co. of Tennessee, Chandler Sales and Service Co., Cumberland Motor Co., Imperial Motor Car Co., Overland Nashville Co., Stockell Motor Car Co., Tennessee Auto Co., Ben S. Williams & Son.

$25,000,000 Goodyear Stock Issue

AKRON, OHIO, Jan. 26—The Goodyear Tire & Rubber Co. has authorized an issue of $25,000,000 second preferred stock which is to be sold, not to the general public through stock brokers, but to Goodyear users through the service station dealers and to Goodyear dealers themselves. Instead of a commission to a brokerage firm, the company will pay each dealer $2 for every share sold by him. Only $15,000,000 of the stock will be issued at present, the remainder to be held in the treasury and sold under carefully drawn restrictions. The issue is in shares of $100 par value, bearing 8 per cent interest. They are cumulative and non-assessable, and must be bought back by the company within 10 years, at a rate of 10 per cent a year.

The Goodyear company believes that by this unusual plan, its dealers will have an opportunity, not only to make a personal investment, but to cement the relations of dealers with their customers. The present war conditions, which have caused the increase in price of raw materials, and the prospects of a still further increase, necessitated the additional financing. The company already has $25,000,000 common stock, of which $21,000,000 is outstanding, and $25,000,000 first preferred of which $23,000,000 is outstanding.

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QUALITY *Makes Up For* QUANTITY at Baltimore Show

Attendance Was Lower but Interest Was Higher—Dealers Prepare for Drive-aways

BALTIMORE, Jan. 26—Baltimore will be able to sell all the motor cars her dealers are able to bring into the territory. This was the verdict of the majority as the 1918 show held in the Fifth Regiment Armory for 5 days came to a close to-night. It was the twelfth annual show held under the auspices of the Baltimore Automobile Dealers' Association and the Automobile Club of Maryland. In point of attendance it was way below last year, only 25,000 attending compared with over 40,000 passing through the gates at the 1917 show. What was lacking in numbers was made up in a better and more interested class of people and buying was better than last year.

But the dealers are prepared for any emergency. They are willing in the majority of instances to drive their cars from the factories. Some firms have been forced to do it for sometime and are prepared to continue to do so. Others have arranged to have their passenger cars brought over the roads on trucks. This is especially true, where the dealers handle both truck and passenger cars. Accessory houses are making arrangements with firms driving trucks into Baltimore to bring along accessories and this helps to divide the cost of bringing cars over the roads.

Enthusiasm Was Rampant

There was more real enthusiasm distributed over the dealers and distributers about the show this year than was evident last year. Those who came this year talked automobiles for immediate delivery and not until spring opened. The prospect lists of the firms, which have been studied closely by men of long standing in the business, are believed to hold better business than those obtained last year.

Baltimore's show ran into some real difficulties. The snowstorm kept farmers and buyers from Western Maryland and the Eastern Shore away, the mountain roads in many spots being impassable. Consequently there were only a few county dealers at the show this year compared with last year, when much of the rural business was closed up for the season. Some of the distributers declined to sign up county men unless they would agree to drive at least 50 per cent of their cars over the roads.

After having the way cleared on Monday to open the show on Tuesday night, a big scare was thrown into the management on Tuesday, shortly before noon, when Fuel Administrator Meyer telephoned General Manager H. M. Luzius that complaint had been filed by a theatrical management that the show was an amusement proposition and under the Washington ruling could not open. Luzius replied that it was strictly commercial and that dealers were spending $400 and $500 and some of them more to show their cars so they could sell motor cars to people and it was in no sense an amusement. This commercial idea was strengthened when an investigation was made at the City Collector's office, which showed that no amusement permit was taken out. But Luzius to be on the safe side did not permit the band to attend, nor was the electric light sign burned on the opening night.

There were 43 distributers showing 183 models of passenger cars. Closed cars, or the convertible type bodies predominated.

No Motor Trucks

Only passenger cars were shown this year as has been the case for several years, but the commercial car men had their show rooms ready for business during the day. They were unable to have their showrooms lighted at night because of an agreement entered into by the dealers that they would not burn current in the evening in the showrooms during the month of January.

A few weeks before the show opened W. F. Kneip, president of the Dealers Association, accompanied by W. E. Duck, of the executive committee called on some of the dealers and assured them there was going to be a show because the impression had gotten about that the government was liable to prevent it being held in the armory. Mr. Duck said the dealers were told they were not being solicited because the show would be as good as ever and would positively be held. The Stutz and Mercer cars were practically the only ones represented last year that were not in the show this year.

Buyers of cars as well as the majority of prospects appeared to be professional men and persons living in the suburbs. Many storekeepers in rural sections and the men making good money in the munition plants. These workers are having trouble getting to their plants and housing conditions, in some cases far from their work, make it advantageous for them to own their own cars.

Maryland will obtain a revenue of $1,000,000 from its motor vehicles in 1918 is the forecast of E. Austin Baughman, motor vehicle commissioner of Maryland. He placed the licenses as follows for the 1918 year:

Passenger Car	79,000
Solid Tire	6,000
Dealer's	3,800
Motorcycle	7,600

In 1916 the receipts of the office amounted to $565,302 and Baughman made an estimate that this would reach $800,000 in 1917; the actual figures compiled at the close of December showed $815,385.13. The Maryland Motor Vehicle Commissioner declares that the war is not going to have any effect on the motor car business because war has brought out the great possibilities of the motor vehicle. Baughman figures that there will be an increase of 22,000 passenger cars, 1800 trucks and 2000 motorcycles. These figures show an increase of 40 per cent in passenger car business and 60 per cent in commercial business.

Baltimore being the key to the state was never better as far as her financial condition is concerned. Munition plants, shipbuilding and steel plants have attracted thousands of skilled workers here and this has brought additional money to merchants. The Clearing House receipts broke all records showing a gain at the close of December of $59,732,060; the 1917 figures being $2,266,071,012, a mark, which broke all records. A Farm Loan Bank will shortly open in Maryland and there will also be a branch of the Federal Reserve Bank located here. Maryland has a population of $1,362,807 with a land area of 6,362,240, there being 48,923 farms in the state with a property valuation of $286,167,088, the farm products are valued at $41,589,335; and value of live stock products is $20,437,385, making a total valuation of farm property and farm and live stock products of $348,193,748.

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22 New Members for N. A. A. J.

NEW YORK, Jan. 25—Following is a list of new members elected to membership in the National Association of Automobile Accessory Jobbers at the New York convention:

JOBBERS

H. P. Dils & Son Co....Parkersburg, W. Va.
Downing Electrical Co.....Des Moines
Duluth Auto Supply Co.....Duluth
Elin Auto Supply Co.....Newark
Michael Ert.....Winnipeg, Canada
Henderson Auto Supply Co. Youngstown, Ohio
T. T. Hutchisson & Co....Wheeling, W. Va.
Northern Electric Company.....Montreal
Wisconsin Auto Supply Co.....Wausau

MANUFACTURERS

Advance Auto. Accessories Corpn....Chicago
Albertson & Co.....Sioux City
Allen Auto Specialty Co.....New York
Bay State Pump Co.....Boston
Philip Brinton Co.....Kennett Square, Pa.
Hawthorne Mfg. Co.....Bridgeport
Motor Parts Co.....Philadelphia
Prescott Auto Parts Co.....Webster, Mass.
Spencer Metal Products Co....Spencer, Ohio
A. J. Stephens Rubber Co.....Kansas City
Van Sicklen Co.....Elgin, Ill.
W. C. Wood Co.....Minneapolis
X Laboratories.....Boston

Autocar Chassis Now $2,050

ARDMORE, PA., Jan. 26—The Autocar Co. has increased the price of the Autocar chassis from $1,815 to $2,050. Orders placed prior to Feb. 6 will be accepted at the old price.

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What Good Is Standardization?

1—It Built 550 Sub-Chasers in 488 Days
2—It Will Build 2 Steel Ships a Day

This Story is about an S. A. E. Meeting—Read It.

NEW YORK, Jan. 26—No better example of the value of standardization can be found than in the message given by Henry R. Sutphen of the Elco Works, Bayonne, N. J., to members of the Society of Automotive Engineers at the Automobile Club of America last night.

It was standardization which made possible the production of 550 80-ft. submarine chasers in the remarkable time of 488 days. And it is standardization which is going to make possible the production by the same company of one hundred and fifty 5000-ton steel cargo vessels at the rate of two finished ships a day. More than 200 members and guests heard Sutphen's talk and others by Irwin Chase, designer of these 80-ft. chasers, W. S. Howard and Captain A. P. Lundin.

Sutphen told substantially the same story of the conception, design and construction of this fleet of submarine chasers, which is now doing duty abroad, as he told before the meeting of the Society of Automotive Engineers in Washington last spring; he told how these boats were fabricated 1000 miles from their place of assembly; how only 5 per cent of the men who did the assembly work could understand English, being French Canadians; how only 2 per cent of those men had ever previously been engaged in boat building; and how there was never a hitch in the assembly of the chasers, which were finished long before the specified contract time and which have since shown themselves worthy the American inventive genius, thoroughness and perseverance which made them possible.

Boats Are Manufactured

The manufacture—the term building is no longer applicable to the production of such fleets—of the one hundred and fifty 5000-ton steel cargo vessels will be carried on in much the same way as the 80-ft. wooden chasers were produced. Experience with these boats made plain the limitations of standardization when wood is used, because wood will not stay put as will steel.

For the first time in the history of ship building, structural steel shapes such as are used in the building of bridges and skyscrapers, are to be used in the production of ships; such shapes are to take the place of the usual steel ship plates. The design of these cargo vessels, and their method of construction, has been passed by the highest shipping and insurance authorities as equal in strength and seaworthiness to the best ships built by ordinary methods.

Already the keels of four of these ships have been laid and the production of the fleet will be carried on in much the same way as Henry Ford produces automobiles. The various parts are to be fabricated in 48 shops scattered all over the United States. The parts will be shipped to a number of central assembly places and the ships erected by unskilled labor recruited from building, bridge building and other trades familiar with structural steel work but not necessarily at all familiar with shipbuilding. The shops that are producing the parts, in nearly every case, have never seen a completed ship of the kind that is to be built—and may never see a finished ship. More than 90 per cent of the material will be built in these structural steel shops.

Schools will be established for the instruction of workmen in assembling the ships and each man will be taught a particular detail, as is the case in Ford's plants. It is the plan to employ any man who can stand on two feet, has two arms and is healthy.

New Materials; New Methods

The whole scheme requires the use of entirely new materials and methods. Even the machinery has been thoroughly standardized. Turbine engines are to be used—a total of 225,000 hp. being required for the fleet—because turbines can be manufactured whereas reciprocating engines require to be built. It will be possible to turn out the machinery more rapidly than the hulls can be completed.

The keynote of the success of the task depends upon the accuracy of the drawings, what with parts being made in 48 different shops. This accuracy already has been demonstrated. When the first keel was laid a structural steel shape was fitted to it, and another produced in a shop more than 1000 miles distant, when laid alongside the first, fitted to a hair's breadth.

These large fabricating yards have been established and the work of producing the fleet is to be carried on with the greatest speed possible. The incentive which is driving the workmen is to be found in a motto which hangs conspicuously in every shop connected with the work: "WE WILL ALL BE ONE, 'TILL WE'VE BEAT THE HUN."

Rubber War Service Committee

NEW YORK, Jan. 22—The Rubber Assn. of America, Inc., has appointed a war service committee, representing the entire industry, with the following members: B. G. Work, president of the B. F. Goodrich Co., Akron, chairman; H. S. Firestone, president of the Firestone Tire & Rubber Co., Akron; James N. Gunn, president of the United States Tire Co., New York; G. B. Hodgman, president of the Hodgman Rubber Co., New York; and P. W. Litchfield, vice-president of the Goodyear Tire & Rubber Co., Akron. Some of the functions of the war service committee will be to act as a point of contact between the industry and the Government; to supply information as to the ability of the industry to serve the needs of the Government in carrying on the war; to supply statistics regarding rubber; to co-operate in the standardization of specifications and products for Government use; to assist in the speedy and efficient production of Government requirements; and to put before the Government the needs of the industry at all times.

To help carry out these functions, subcommittees will be formed to represent the various branches of the industry. Among these will be committees on pneumatic tires, solid tires, mechanical goods, medical goods, boots, aircraft, gas defense, reclaimed rubber, hard rubber goods, crude rubber and kindred products, foreign trade, statistics, supplies and reports. There will be technical as well as commercial committees on the various sub-divisions, to insure a balance of attention.

Reiss Takes Carlisle Tire

NEW YORK, Jan. 28—Charles E. Reiss, Hupmobile distributer, has become wholesale distributer for the Carlisle Cord Tire Co., and will trade as the Carlisle Cord Tire Sales Co. The new company, which is not incorporated, will function as the wholesale distributer for the Carlisle company in a large part of the Eastern territory, including New York City and parts of Pennsylvania, New Jersey and Connecticut. The acquisition of the tire business will not in any way interfere with Reiss's Hupmobile interests or business.

Packard Prices to Be Increased

DETROIT, Jan. 26—Beginning March 1, the Packard Motor Car Co. will increase the factory prices of all the 3-35 models $200, and the 3-25 models $250. The price change is on the chassis only, all styles of bodies advancing the same amount. The prices follow:

Model 3-25 (128-in. wheelbase)

Model	New Price	Old Price
Roadster	$3950	$3700
5-pass. touring	3950	3700
7-pass. touring	3950	3700
Sedan	5650	5400
Limousine	5500	5250
Landaulet	5550	5300

(Model 3-35 (134-in. wheelbase)

7-pass. touring	$4300	$4100
Sedan	6000	5800
Limousine	5850	5650
Landaulet	5900	5700

On account of freight conditions, the company will use the drive-away plan of getting cars to their destinations, and as many as possible will be driven from the factory.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Positions

T. P. Chase has resigned as chief engineer of the King Motor Car Co., Detroit. He leaves Feb. 1.

W. E. Blaine has resigned as truck engineer for the Packard Motor Car Co., Detroit. He has been appointed a captain in the Officers Reserve Corps of the Ordnance Department and will be stationed at Washington.

E. E. Main, until recently with the Rajah Auto Supply Co., Bloomfield, N. J., has been appointed chief engineer of the Eclipse Mfg. Co., Indianapolis.

W. H. Knowles has resigned as chief engineer of the Saxon Motor Car Co., Detroit, to become superintendent of the Hale & Kilburn Co.'s plant at Philadelphia.

J. M. Crawford, formerly assistant chief engineer of the Chalmers Motor Car Co., is now chief engineer of the Allen Motor Co., Fostoria, Ohio.

Nat. Doane, Jr., formerly salesman at the Cadillac Automobile Co., Manchester, N. H., has joined the aviation branch of the Signal Corps.

Ollie E. Haupt of the Ollie E. Haupt Motor Co., St. Louis, Ford dealer, has enlisted as an officer in the aviation corps at San Antonio. Paul Schoenig of the Ford assembly plant here has been made manager.

Wesley A. Stanger has resigned as president of the Mitchell Automobile Corp. of St. Louis. He formerly was president of the Ben Hur Co. of Missouri.

St. Alexis Steiner, formerly an officer of the Velie Automobile Co. of St. Louis, has been promoted from first lieutenant to captain in the U. S. Army, and made instructor in field fortifications for the 89th Division at Camp Funston.

Frank A. Flint, sales manager for the Hudson-Phillips Motor Car Co., St. Louis, has been made assistant sales manager of the central zone for the Chevrolet Motor Co., with headquarters at Flint, Mich. He will join there B. J. MacMullen, formerly manager of the Hudson-Phillips Co.

Charles A. Ackerman, for the past three years used car manager for the New York branch of the Studebaker Corp of America, has been appointed sales manager for the Franklin Motor Car Co. of New York, Franklin distributer. He will have supervision over both new and used car sales departments.

R. E. Benner has been made factory manager of the H. H. Franklin Co., Syracuse, N. Y. Benner was at one time with the Maxwell company as a car designer and afterwards with the Buick company.

Y. E. Stewart has been appointed sales manager of the Economy Motor Co., Tiffin, O.

F. D. Palmer has been appointed used car manager for the Reo Motor Car Co. of New York. He was formerly connected with the New York branch of the Studebaker Corp.

E. W. Martin, for several years superintendent of construction at the Ford assembly plant, St. Louis, has become manager of the Hallman-Whitten Mfg. Co., 4440 Olive St., St. Louis.

W. F. Schmidt of St. Louis has been made general manager of the Packard-Missouri Motor Car Co.

N. F. Sutton, who has been manager of the General Motors Truck Co., St. Louis, for 5 years, has resigned and will conduct his own business in Portland, Ore. He has formed a partnership with W. K. Chilcott, former sales manager of the General Motors Truck Co. at Pontiac, and the concern will sell Nash cars and trucks in Oregon, Washington, Idaho, Alaska and part of Montana.

Frank J. Nudelman has been appointed branch manager of the Maremont Mfg. Co., St. Louis.

Mason P. Rumney, formerly sales manager of the Detroit Steel Products Co., has been commissioned a lieutenant in the Ordnance Department.

Alexander Churchward has relinquished his interest in the A. B. C. Starter Co., Detroit, and is no longer connected with that concern. Churchward is at present engaged in consulting work of an electrical engineering nature.

J. F. Dugan has been made production manager of the Stanley Motor Carriage Co., Newton, Mass. Dugan was superintendent of the works of the Buick Motor Co. for 5 years, and for 3½ years production manager of the Chevrolet Motor Co.

L. L. Hopkins has been appointed office manager of the Albany branch of the Firestone Tire & Rubber Co. to succeed G. E. Hoff. Hopkins comes to Albany from the Boston branch of the company, where he was in charge of the credit department.

Arthur F. Stiles, formerly assistant sales manager for the Tri-City Motor Co., Albany, has joined the Studebaker Corporation of America here.

Motor Securities

	Bid	Asked
*Ajax Rubber Co.	48	51
*J. I. Case T. M. Co., pfd.	77	80
Chalmers Motor Co., com.	3	6
Chalmers Motor Co., pfd	..	50
*Chandler Motor Co.	72	73½
Chevrolet Motor Co.	110	112
*Fisher Body Corp., com.	25	34
*Fisher Body Corp., pfd.	75	87½
Fisk Rubber Co., com.	49	51
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2nd pfd.	60	70
Firestone Tire & Rubber Co., com.	95	98½
Firestone Tire & Rubber Co., pfd.	95	97
*General Motors Co., com.	116	118
*General Motors Co., pfd.	96	98
*B. F. Goodrich Co., com.	43	44
*B. F. Goodrich Co., pfd.	96	98
Goodyear Tire & Rubber Co., com.	135	137
Goodyear Tire & Rubber Co., pfd.	97	98
Grant Motor Car Corp.	2	3
Hupp Motor Car Corp., com.	2	3
Hupp Motor Car Corp., pfd.	75	80
International Motor Co., com.	14	17
International Motor Co., 1st pfd.	40	45
International Motor Co., 2nd pfd.	14	23
*Kelly-Springfield Tire Co., com.	42	43½
*Kelly-Spr'gfl'd Tire Co., 1st pfd.	75½	79
*Lee Rubber & Tire Corp.	13½	14
*Maxwell Motor Co., Inc., com.	26	27
*Maxwell Motor Co., Inc., 1st pfd.	57	58½
*Maxwell Motor Co., Inc., 2nd pfd.	21	22
Miller Rubber Co., com.	128	134
Miller Rubber Co., pfd.	95	96
Packard Motor Car Co., com.	86	92
Packard Motor Car Co., pfd.	90	94
Paige-Detroit Motor Car Co.	15	17
Peerless Truck & Motor Corp.	16	17
Portage Rubber Co., com.	110	114
Regal Motor Car Co., pfd.	..	23
Reo Motor Car Co.	16	18
*Saxon Motor Car Corp.	8	9
Springfield Body Corp., com.	..	..
Springfield Body Corp., pfd.	..	..
Standard Motor Construction Co.	8½	9½
Standard Parts Co.	65	75
*Stewart-Warner Speed. Corp.	49	51
*Studebaker Corp., com.	50½	51
*Studebaker Corp., pfd.	91½	95
Swinehart Tire & Rubber Co.	25	40
United Motors Corp.	24	24½
*U. S. Rubber Co., com.	56	57
*U. S. Rubber Co., pfd.	96	97
*White Motor Co.	38	39
*Willys-Overland Co., com.	17	17½
*Willys-Overland Co., pfd.	76	77

*At close, Jan. 26, 1918. Listed N. Y. Stock Exchange.

Wilmington Show Good Business Proposition

Dealers Report 25 Per Cent. Gain in Sales Over 1917—10,000 More Visitors This Year

WILMINGTON, DEL., Jan. 28—As a business proposition, the fourth annual Wilmington show, which ended on Saturday night, had all of its predecessors distanced. Some of the exhibitors say they did 50 per cent more real business than last year, which was the best up to that time, and 25 per cent increase all around would be a fair average.

The attendance, which was about 60,000, was 10,000 better than last year, and there was a much larger proportion of visitors actually interested in the motor car than ever before. Everybody agreed that it was a "business crowd."

Trucks are not permitted at these shows, because they are held in the lobby and main dining room of the Hotel Du Pont. Being public, no admission is charged. The net cost of this year's show to the retail trade was $1,200. This represents the expense, about the same as last year, and it was borne by the 21 dealers and eight accessory men exhibiting.

Dealers are optimistic about the spring and summer business, with the belief that the chief demand will be for trucks and the fear that the demand cannot be supplied. Some now have unfilled orders for cars because they are unable to get them.

The war made no difference in the Wilmington show, because no admission was charged. No tractors or farm vehicles were shown, but tractor men were on the job and did lots of business. They believe Delaware will show great results in the farm trade this year.

The business outlook in Delaware is good this year. Wilmington, where most of the manufacturing industries of the state are located, has developed to such an extent that thousands of persons engaged in business here are unable to find homes, and the city and United States Government expect to spend $3,000,000 supplying the deficiency in this behalf.

A great deal of war material is manufactured here, the chief industries being steel and wooden ships, steel cars, leather and kindred products, fiber, explosives and machinery. The rest of the state is devoted to agriculture, and, being near the city market, all available land will be used this year to supply the cities with produce. This is where the motor car and farm tractor will have an opportunity to shine.

The people will have plenty of money, with mechanics earning from $5 to $20 a day and other wages in proportion, lots of persons not used to cars heretofore are likely to have them this year. As a rule the cars bought will be those that can be used for both passengers and business.

The motor car is used here in connec-

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tion with all kinds of business, chiefly for delivery purposes and in hauling around industrial yards and to and from transportation terminals, while some are used for regular freight traffic between Wilmington, Philadelphia and other points in Pennsylvania, Maryland and Delaware.

It is estimated that 2000 cars are used in Wilmington for business purposes.

The accessory people at the show—and there were eight of them—were quite as well pleased as the motor men. While there were no striking features that were not there last year, the public showed just as much interest as if there had been.

Canadian Dealers to Organize

MONTREAL, Jan. 26—Representative dealers from Quebec, Sherbrooke, Three Rivers, Huntingdon, Ste. Therese, and Kingston, Ontario, were present yesterday at the meeting held for the purpose of discussing the organization of local automobile trade associations along the lines so successfully followed by the Montreal Automobile Trade Association. Committees were appointed to carry out the preliminary organization work at each of the centers represented, and they will report back at a meeting to be called in Montreal shortly.

To Organize Canadian Manufacturers

MONTREAL, Jan. 26—A largely attended meeting of general managers, sales managers, branch managers and other officials of the various factories represented at the Montreal automobile show was held for the purpose of considering the general conditions of the trade in Canada. The discussion dealt largely with the desirability of a Dominion-wide organization of manufacturers and general agencies, but definite action was not decided upon. Sufficient progress was made to justify the expectation that the conferees will organize at a later meeting.

Kirby Will Remain

MONTREAL, Jan. 26—At a special meeting of the directors of the Montreal Trade Association, held yesterday afternoon, Mr. T. C. Kirby, manager of the association and the show for the past five years, was asked to reconsider his resignation, which he tendered this week. After the situation had been discussed and strong pressure brought to bear upon Mr. Kirby, he consented to withdraw his resignation and forego the plans which he had made for other and wider activities. He will, therefore, continue to discharge the duties which he has so capably filled under the direction of the board of the association. For the next month he will be kept busy closing up the affairs of the show and the association, in preparation for the end of the association's financial year on Feb. 28. The annual meeting will be held about the middle of March, when it is expected the present officers and directors will be re-elected without opposition.

Boston Decides Not To Postpone Its Show

Original Dates, starting March 2, Retained—Space Sold to 90 Dealers Already.

BOSTON, Jan. 26—Boston will hold its motor car show on March 2 and the following week, the regular dates decided upon each year. The matter was thoroughly considered and it was found by the board of directors that to make a change to a later date would involve a lot of cancelling of contracts and mixing up of matters that would be harmful. A number of the dealers want it held as originally plann d to take advantage of the early spring, and also to get it started ahead of the next proposed Liberty Loan.

The only idea of changing the date was due to the Monday holiday and the thought that the fuel conservator would hamper the exhibition by closing it at night. That is not thought possible now. There are some 90 makers who have taken space and there will be about 500 cars and trucks in the show. This will be the only big show where trucks will have a good chance to exhibit as well as cars. A big list of accessory people are to show here also. There will be no trouble to heat the building, in fact it is always too hot during show week, and the steam has to be turned off.

Des Moines Dealer Holds Used Car Show

DES MOINES, Jan. 26—The Clemens Auto Co. made the first pretentious attempt at holding a used car show this week that has ever been tried in Des Moines. All the used cars in the show were previously put through the paint shop and all new cars were removed from the display room to make room for them. The display room was decorated for the occasion and the used cars presented such an appearance as to give the casual observer the idea that the room was filled with new cars. The show was advertised extensively and members of the company are more than pleased with the results. A week of mild weather after a period of six weeks of unusual cold tended to bring out a larger number of visitors and many sales were made.

Greer-Robbins Territory Extended

LOS ANGELES, Jan. 26—Greer-Robbins & Co., Hupmobile and Chalmers distributers for southern California, has been appointed distributer for the Hupmobile throughout California, Arizona and Nevada. The firm has been the second largest distributer of this car in the world, New York City alone leading them. P. H. Greer and A. C. Robbins, of the organization, will divide their time between Los Angeles and San Francisco. E. W. Milburn, former manager of the factory branch in San Francisco, will continue in charge there. The company is one of the oldest in the State in this business, having been established in 1903.

Garford Trucks Delivered Overland

LIMA, Jan. 2C—What is perhaps the largest overland delivery of motor trucks ever attempted at one time is being made by the Garford Motor Truck Co. This fleet, comprising thirty-eight trucks of all the various models from 1½ to 7 tons capacity, left the plant at Lima last Wednesday in the face of the most severe weather conditions imaginable. Battling with snow drifts mountain high over roads that had become well nigh impassable these freight haulers are bucking their way over a long haul to New York City.

York Show Abandoned

YORK, PA., Jan. 26—Owing to the coal shortage in this city, the annual show which was to open this evening in the tabernacle, South Queen Street, was called off. The arrangements for the exhibition were progressing nicely and practically all of the available floor space had been sold when Robert E. Gephart, York county fuel administrator, informed the committee of the York Automobile Dealers' Association that the show must not take place at this time owing to the scarcity of coal.

Rhode Island Garage Fires Cause $130,000 Loss

PROVIDENCE, R. I., Jan. 26—Two big garage fires in one day with a loss of nearly $130,000 and about 50 motor vehicles was the New Year's gift to the motor colony of Rhode Island. The larger of the two fires was in the big Packard service station, and caused about $120,000 loss. Charles Livingston was filling a tank with gasoline, and when he had finished he struck the funnel against the spout of the can, there was a flash and he was soon ablaze, as well as the car. The fire spread rapidly and burned 35 touring cars, seven trucks and $30,000 worth of accessories, parts, etc. The motor vehicles were valued at $70,000, and the loss to the building, which will have to be entirely rebuilt, was about $20,000.

The second fire occurred in the garage of Price & Thornton. There were five cars in this building, which was a wooden structure.

Rock County Dealers Organize

JANESVILLE, WIS., Jan. 26—The Rock County Automobile Trade Association was organized at Janesville, Wis., at a meeting of more than 20 dealers and garagemen. The association will incorporate under the laws of Wisconsin, the articles being signed by C. W. Kemmerer, J. A. Drummond, H. C. Prielipp, R. F. Buggs and J. C. Fredendall. The object of the association is to promote mutual welfare. A show will be conducted at Janesville in February or March.

WASHINGTON, D. C., Jan. 28—Lieut. Col. Thurman H. Bane, Signal Corps, is appointed a member of the Joint Army and Navy Technical Aircraft Board, vice Major Harold S. Martin, Signal Corps.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1095	1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	29.4	G & D	Zenith	G & D	D	3	122	32x4	SS	....	1375	....	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	33x4	SS	**1465	....	....	....	2165	....	....
DeLuxe	6-3½x5½	29.4	.....	.....	.....	D	3	....	....	....	**1925	....	....	....	....	....	....
APPERSON																	
6-18	6-3½x5	29.4	Remy	Rafid	Bijur	DP	3	130	35x4½	SS	†2200	....	2200	....	....	....	....
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	35x4½	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1595
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	4950	5250	....
BIDDLE																	
H	4-3½x5½	22.5	E'mann	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West	Stmbg	West	DP	3	118	33x4½	QD	....	....	....	....	....	....	....
	4-3½x5½	22.5	West	Rafid	West	DP	3	118	32x4½	....	....	1680	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	7200	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	725	725	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 {125	35x5 34x4½	SS	2805	....	2805	....	3650	4145	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafid	Wsths	D	3	125	35x4½	SS	†1875	....	1875	....	**2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	{117 {122	32x4 34x4	SS	1365	1365	1450	....	1850	2925	....
CHANDLER																	
25	6-3½x5	29.4	Bosch	Rafid	Wsths	DP	3	123	34x4	SS	†1595	....	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA-2	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	35x4½	SS	2395	1995	2195	2495	{2595 {2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1350	....	....	1995	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	112	32x3½	SS	†995	995	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	....	{935 995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	{132 {142	35x5 37x5	....	....	....	....	....	....	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	....	....	....	....	....	....	....
DAVIS																	
H, I, K	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1485	1485	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1785	1785	....	....	....	....
DISPATCH	4-3½x5	22.5	Bosch	Rafid	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....
DIXIE FLYER																	
L895	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†995	995	....	....	1375	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	795	....	....	1095	....	....	865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	975	975	975*	1375	1375	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3550	3500	3550	....	5180	5250	....
MAXWELL																	
25	4-3½x4½	21	A.Kent	K D	Simms	C	3	109	30x3½	C	‡745	745	....	1095	1095	1095	855
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3500	3500	3500	....	4600	4650	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	115	32x4	QD	3400	Raceabout	3250	..	....	....	....
METZ																	
25	4-3½x4	24	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Conn	Rafid	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	‡1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	....	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Heinse	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
	6-3½x4½	25.3	Heinse	Stmbg	Dyneto	D	3	117	33x4	SS	1195	1195	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	30x3	QD	565	†635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x4	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Tltsn	Wagner	DP	3	114	32x3½	SS	....	1195	....	....	....	....	....
6-45	6-3½x4½	25.3	Delco	Rafid	Delco	DD	3	125	34x4	SS	‡1685	....	1685	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1850	....	1850	2650	2650	....	....
MOORE																	
30-E	4-3½x4½	22.5	Spldf	Schebler	Dyneto	D	3	{106 {108	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafid	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-683	6-3½x5	25.3	Delco	Marvel	Delco	P	3	121	34x4	SS	†1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	†1995	†1995	1995	2645	2820	....	....
Twelve	12-2½x4½	39.6	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	†2595	†2595	2595	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	1800	....	.. .
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	†990	990	....	{1150 {1490	1190	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1467	....	....	....	....
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1185	1185	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	Remy	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	112	32x4	SS	‡915	930	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Tltsn	A-Lite	C	3	{104 {106	31x4	C	780	795	†840	....	1240	....	....
85	6-3½x4½	25.3	....	Tltsn	A-Lite	C	3	116	32x4	....	820	970	....	....	....	....	....
	4-3½x4	16.9	Conn.	.....	A-Lite	D	3	100	30x3½	....	....	....	....	....	....	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7	}					{136	}	}	‡3950	†3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	{142	35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								{136				....	4100	....	....	5650	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	{128	35x5	QD	....	3700	3700	5050	....	5250	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1330	1330	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafid	Remy	D	3	127	35x4½	SS	....	....	1775	2850	....	3230	....

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DOBLE	2-5 x4	....	Own	Doble Stmbg	Wagner			135	35x5	....	....	....	3750	....	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24	Delco	Stewart	N.E.	D	3	114	32x3½	SS	885	885	....	1350	1350	....	....
DORRIS																			
I-C-6	6-4 x5	38.4	Bosch	Stmbg	Wsths	D	3	130	36x4½	SS	....	....	2995	4200	4200	4500	....
DORT																			
11	4-3½x5	19.6	Conn.	Carter	Wsths	C	3	105	30x3½	QD	865	865	....	1265	1265	....	....
ELCAR																			
D.F.	4-3½x5	19.6	Delco	Carter	Dyneto	DP	3	116	32x3½	SS	....	....	....	....	....	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	....	....	....	....	....	....
ELGIN																			
A	6-3½x4½	23.4	Remy	Stmbg	Wagner	DP	3	117	32x4	....	†1095	1095	....	1045**	1645	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	†1345	1345	1345	....	1685	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly Kngstn	....	D	2	100	30x3½	rC	345	360	....	560	695	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	{32x4 SS 33x4½		2050	2050	....	2850	2950	3200	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Radfid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1055	1055	....	....	....	....	1350
HAL TWELVE																			
21-A	12-2½x5	39.6	....	Stmbg	Wsths	DP	3	135	34x4½	SS	3600	3750	3600	....	4500	5000	....
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	29.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	785	....	....	....	....	....
HARVARD																			
4-30	4-3x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	750	†985	....	....	....	....	....
HAYNES																			
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1725	....	....	....	....	....
39	6-3½x6	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1825	....	1825	....	2585	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2785	....	2785	....	3385	....	....
HOLLIER																			
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1285	....	....	....	....	....
188	8-3x4½	28.8	A.Kent	Stewart	Splitdf	C	2	116	34x4	SS	†1285	1285	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125	34x4	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1250	1250	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A-Lite	Zenith	A-Lite	DP	3	118	37x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
26-AB	6-3½x5½	29.4	Remy	Stmbg	Remy	DP	3	125	34x4	SS	....	1675	1675	....	2550	....	....
JORDAN																			
J 60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2750	2500	....
KING																			
EE	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	‡2150	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Deleo	Stmbg	Own	DD	3	128	34x4½	....	1585	.	2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1350	1350	....	....	1925	....	....
LOCOMOBILE																			
38Series II	6-4½x5	43.3	Berling	Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
48 Series II	6-4½x5½	48.6	Berling	Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON																			
	....	....	.....	.....	.....	..	.	{124	....	....	....	....	....	....	....	....	....
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	{120	34x4	SS	†1485	1485	1485	....	....	....	....

PAN-AMERICAN																			
G-5	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1500	....	1650	....	1950	....
J-7	6-3½x5½	29.4	Bosch	Rafid	G & D	P	3	128	34x5	..	....	....	....	....	....	....	....
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	**1795	....	....
PEERLESS																			
56	8-3½x5	38.8	A.Kent	Special	A-Lite	DD	3	125	35x4½	SS	†2340	....	2340	2850	2990	3690	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Tiltn	Delco	DP	3	119	32x4	SS	†1295	1295	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	32x4½	SS	2285	....	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	..	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1225	1225	....	....	....	....	....
ROAMER																			
C6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2350	....	2475	....	3250	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	2950	....	3250	....	3950	....	....
ROSS																			
	8-3½x5	33.8	....	....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
B-5-R	4-2¾x4	12.1	A.Kent	Schebler	Wagner	DD	3	96	30x3	DC	445	....	....	....	....	....	....
S-4	6-2¾x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	935	....	1395	....	....	....
SAYERS																			
	6-3½x4½	25.3	Delco	....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
D&H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	‡935	....	....	....	....	....	....
Six-39	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	3800	†3800	3800	....	....	4750	....
STANDARD																			
G	8-3½x5	33.8	Splitdf	Zenith	Splitdf	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4x5	....	....	....	....	..	.	130	35x4½	SS	‡2550	2600	2225	....	....	....	....
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1785	1785	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2575	....	2575	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	....	‡1485	†1485	....	1660**	1985	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19.6	Remy	Schebler	Wagner	C	3	112	32x3½	SS	....	895	....	....	....	....	1250
EH-6-50	6-3½x5	29.4	Remy	Schebler	Wagner	C	3	119	32x4	SS	....	1295	....	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1695	....	....	....	....	....
STUTZ																			
S	4-4½x5	30.6	Bosch	Stmbg	Remy	C	3	120	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	....	1985	....	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1340	1340	†1340	....	1885	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Deleo	Rafid	Deleo	DD	3	125	35x4½	SS	†1890	1940	1940**	2790**	2790	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	....	Own	L-N	P	4	{124½ 137½	35x5 35x5	U	†5000	....	†5000	6050	6050	6200	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Tiltn	A-Lite	C	3	121	34x4½	SS	....	....	1525	2175	2225	2325	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2000	....	2700	2800	....
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Tiltn	A-Lite	C	3	120	33x4½	SS	†1365	....	1365	....	2045	....	.. .
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	2950	2950	3000	3865	4165	4165	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3500	3500	3500	4500	4750	4750	....
WOOD'S																			
Dual Power	4-2¾x4	12.1	A.Kent	Stmbg	Own	Mag		134	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A-C" Allis-Chalmers, "L-N" Leece-Neville, "Tltsn" Tillottson, "B & Ball" Ball & Ball, "Atzr" Atomizer, "Rech" Reichenbach, "DD" Dry Disk, "CU" Control Unit, "DP" Dry Plate, "G" Gearless, "F" Friction, "Spldf" Splitdorf, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37½x5½r means that the rear tires are 37x5½, and the front are smaller. Detachable top, 300x, means $300 extra.

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Coming—THE SHOW CALENDAR—*Events*

Is YOUR Show Listed? Send Us the Dates

York, Pa.	York County Auto. Dealers' Assn., Tabernacle. T. F. Pfeiffer, Sec.	Jan 26-Feb. 3
Bridgeton, N. J.	Bridgeton Automobile Dealers' Assn.	Jan. 26-Feb. 2
Harrisburg, Pa.	Harrisburg Motor Dealers' Assn., Emerson-Brantingham Bldg. J. Clyde Myton, Mgr.	Jan. 26-Feb. 2
Chicago, Ill.	Eighteenth Annual, Coliseum and Armory, National Automobile Chamber of Commerce.	Jan. 26-Feb. 2
Chicago	Salon, Elizabethan Room of Congress Hotel.	Jan. 26-Feb. 2
Manchester, N. H.	Academy. Couture Bros.	Jan. 28-Feb. 2
Greensburg, Pa.	Westmoreland Automobile Dealers' Association.	February
Peoria, Ill.	Peoria Auto and Accessories Dealers' Assn. W. O. Ireland, Mgr.	February
Indianapolis, Ind.	Indianapolis Automobile Trade Assn., Diamond Chain Works Bldg. John B. Orman, Mgr.	Feb. 25-Mar. 2
Minneapolis, Minn.	Twin Cities Automobile, Truck, Tractor and Industrial Exposition, Minneapolis Auto. Trade Assn. Walter B. Wilmot, Mgr.	Feb. 2-9
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars.. Trucks	Feb.23-Mar.2 Mar. 5-9
Peoria, Ill.	Peoria Auto Accessories Dealers' Assn. W. O. Ireland, Mgr.	February
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	Feb. 5-9
Bronx, N. Y.	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16
Binghamton, N. Y.	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9
Lancaster, Pa.	Automobile Trade Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	Feb. 6-9
Portland, Ore.	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	Feb. 7-13
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16
Elmira, N. Y.	Elmira Automobile Club. State Armory.	Feb. 11-16
Kansas City, Mo.	Third Annual Tractor, Kansas City Tractor Club.	Feb.11-16
St. Louis, Mo.	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 18-23
Toledo, O.	Toledo Auto Shows Co., Terminal Bldg. H. V. Buelow, Mgr.	Feb. 11-17
Ft. Wayne, Ind.	Automobile Trade Assn., Concordia Gymnasium.	Feb. 13-16
Hartford, Conn.	Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
Albany, N. Y.	Albany Auto Dealers' Assn., State Armory.	Feb. 16-23
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Duluth, Minn.	Duluth Auto. Trade Assn., Armory. John J. Lane, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Nashville, Tenn.	Nashville Auto Trade Assn., Hippodrome. Henry B. Marks, Mgr.	Feb. 18-23
Des Moines, Ia.	Ninth Annual Pessenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet and Dean Schooler, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Quincy, Ill.	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-23
Muskegon, Mich.	Second Annual, Merrill Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2
Bridgeport, Conn.	Fourth Regiment Conn. Home Guard, State Armory & Casino B. B. Steiber, Mgr.	Feb. 25-Mar. 2
Columbus, O.	Columbus Auto Show Co., W. W. Freeman, Mgr.	Feb. 27-Mar. 2
Burlington, Ia.	Cars, trucks and accessories	Feb. 27-Mar. 2
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 23-Mar. 2
Lyons, France	Third Sample Fair	Mar. 1-15
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
Utica, N. Y.	Utica Motor Dealers' Assn., State Armory. W. W. Garabant, Mgr.	Mar. 4-9
Clinton, Ia.	Clinton Automobile Dealers' Ass'n, Coliseum.	Mar. 6-9
St. Joseph	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	Mar. 6-9
Watertown, N. Y.	Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.	Mar. 6-9
Green Bay, Wis.	Brown County Automobile Trade Assn.	Mar. 8-11
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn. Auditorium.	Mar. 11-16
Fargo, N. D.	Gate City Auto. Show Co., Auditorium. J. W. Murphy, Mgr.	Mar. 12-15
Great Falls, Mont.	Montana Automobile Distributers Assn., Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	Mar. 19-24
Houlton, Me.	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-22
Holdredge, Neb.	Second Annual of Southwest Nebraska.	Mar. 20-23
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Atlantic City, N. J.	Second Annual, Garden Pier. W. W. Garabant, Mgr.	Mar. 30-Apr. 6
Hartford, Conn.	Hartford Automobile Dealers' Assn., State Armory. B. F. Smith, Mgr.	Mar. 30-Apr. 6
Red Bank, N. J.	Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr.	Apr. 6-13
Stockton, Cal.	Third Annual San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13
Calumet, Mich.	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-20

Conventions

Montreal, Can.	Convention of all men Interested in the Automobile Industry in Eastern Canada.	Jan. 22-24
Chicago, Ill.	Annual Convention, Garage Owners' Assn. of Ill., Green Room, Congress Hotel.	Jan. 29-31
Richmond, Va.	Richmond Automobile Dealers' Association, First Regimental Armory. Henry B. Marks, Mgr.	Jan. 21-26
Hot Springs, Va.	Third Annual World's Salesmanship Congress.	June 5-12

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Why You Should Be A Michelin Dealer

No. 1

Michelin Is The World's Oldest Tire Maker

No other tire is backed by experience as long as that behind the Michelin—for it was Michelin who invented the pneumatic automobile tire in 1895.

Nor is any other tire backed by an equal record of achievement—for Michelin introduced the inner-tube-type of tire, the demountable rim, the valve spreader, the dual or twin wheel, besides many minor improvements.

Michelin factories are located in the United States, England, France, and Italy—with branches in every part of the globe.

Michelin's world-wide experience and organization, together with Michelin's determination to build the best and only the best—are responsible for the unequalled durability of Michelin Tires and the soundness of the Michelin business.

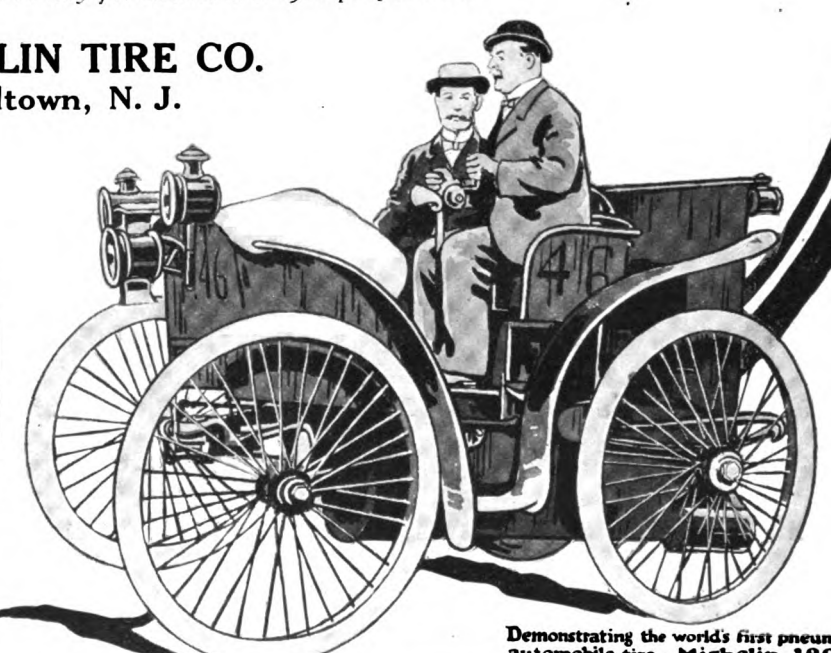
Michelin is a good house to tie up to—as proved by the fact that Michelin dealers stick to Michelin year after year.

Write to-day for Michelin's 1918 proposition.

MICHELIN TIRE CO.
Milltown, N. J.



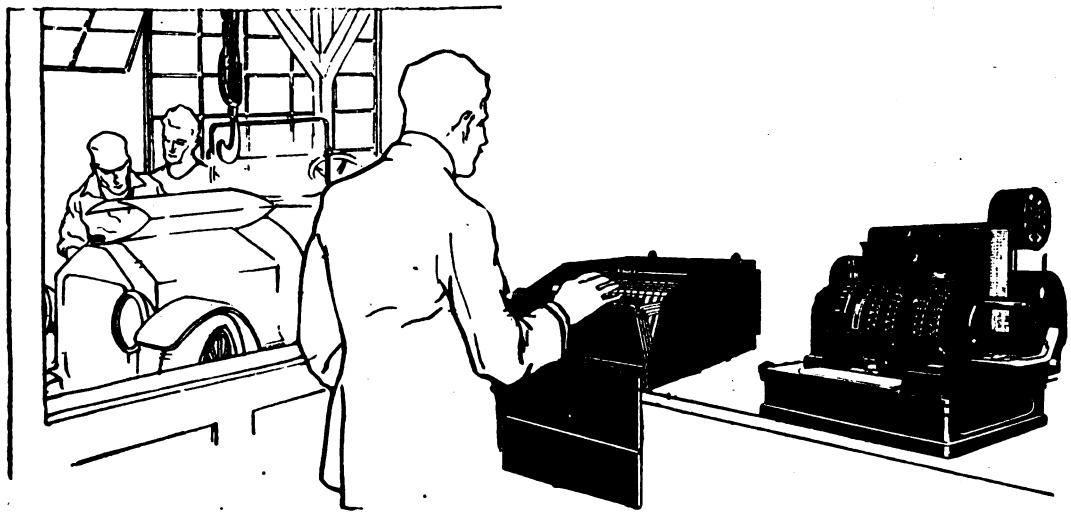
The latest achievement in tire making — the Michelin Universal - Introduced 1915



Demonstrating the world's first pneumatic automobile tire - Michelin 1895 -

MICHELIN

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Up-to-date System for Garages

Electrically Operated National Cash Register

Greatest labor-saving machine for garages and service stations.

It does 15 things in three seconds.

It gives a separate record of money received for storage, tires, oil, gas, repairs, etc.

Advertises your goods direct to your customers.

It does quickly what helpers can't do.

The New N. C. R. Credit File

Cuts out all bookkeeping of customers' accounts.

No customers' ledger, blotter or daybook.

Every customer's account balanced to the minute.

Complete record with one writing. Saves time and work.

Customers like it; it saves their time.

Prosperity is increasing. Hence don't delay.

Order now and get the profits which our system will make for you.

It more than pays for itself out of the money it saves. Sold on small monthly payments.

Old cash registers repaired, bought, sold, rebuilt and taken in exchange for new registers.

To Dept. 34,
National Cash Register Co., Dayton, Ohio

Please send me full particulars of your latest model cash register and the new N. C. R. credit file.

Get the benefit of these prosperous times.

Name_____

Business _____

Address_____

Cut out this coupon and mail it today.

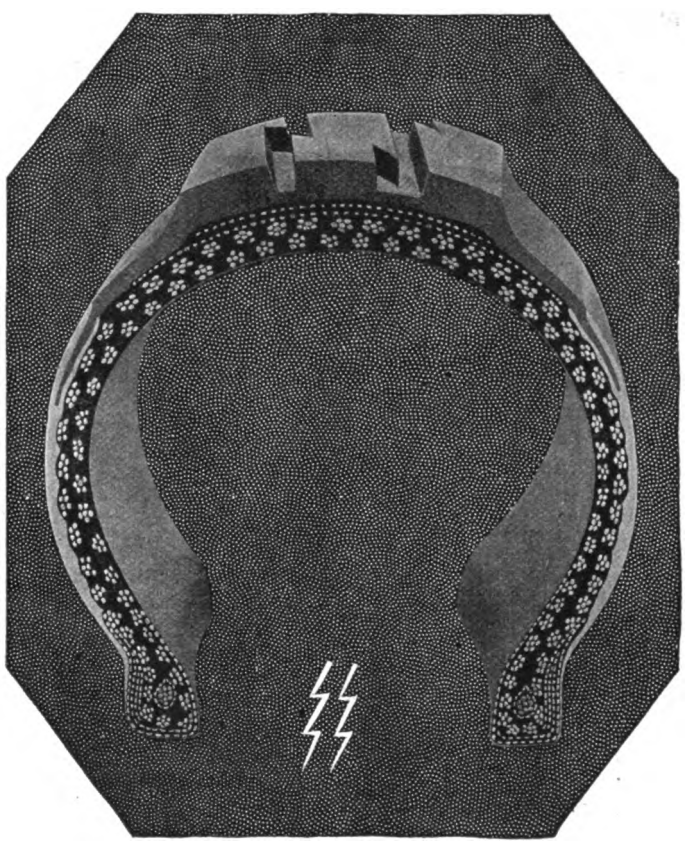
When writing advertisers please mention Motor World—It identifies you

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Just One Strand from the New Carlisle Cord Tire Supports 235 pounds

For the first time cotton rope of extreme tensile strength has been introduced into a tire. And for the first time this rope (equally important) has been used in a tire carass unbroken—in long, continuous strands. What strength this rope and this new method of construction puts into the tire can well be guessed.

The statement that mileage in a casing is increased 40 to 80 percent is conservative and based on exhaustive comparison.



Too, the resilience of this new type casing is astonishing.

The machine used in building Carlisle Cord Tires is a new creation. No other existing machine can build a tire of Carlisle cotton rope without breaking, cutting or hooking.

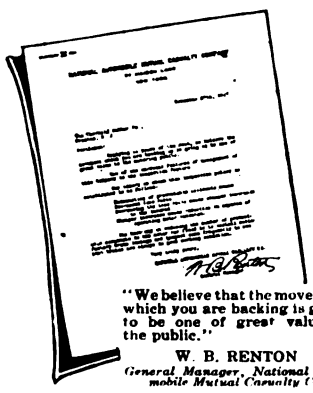
The proposition this new concern is ready to lay before dealers is almost as rare as the product itself. If interested inquire at once, lest later you find yourself obliged to compete against this tire.

CARLISLE CORD TIRES

CARLISLE CORD TIRE CO., 250 WEST 54th STREET, NEW YORK CITY. FACTORY, ANDOVER, MASS.

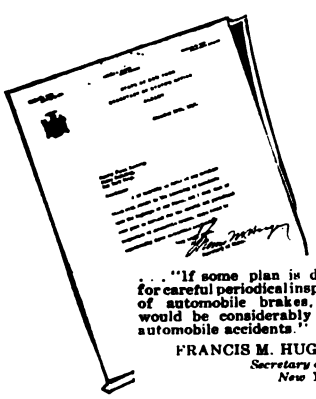
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Get behind this big National Movement



"We believe that the movement which you are backing is going to be one of great value to the public."

W. B. RENTON
General Manager, National Automobile Mutual Casualty Co.



..."If some plan is devised for careful periodical inspection of automobile brakes, there would be considerably fewer automobile accidents."

FRANCIS M. HUGO
Secretary of State New York

An open letter to the trade:

The new Brake Inspection Movement is of such importance to motorists in general, and to the trade in particular, that we wish to add to it our endorsement and to ask your assistance in furthering it.

Object of the movement

The object of the movement is to decrease the number of preventable accidents due to imperfectly adjusted or defective brakes.

An official of the Motor Truck Club of America says that 60% of the accidents caused by brake troubles could be avoided.

One reason for these accidents is that the brake bands are located out of sight and any deficiencies are consequently liable to pass unnoticed until they have developed into serious troubles.

The plan of the "Brake Inspection Movement" is to prevail on every motorist to have his dealer inspect his brakes before the touring season opens. It is called to his attention that the brake-rods can usually be turned up two or three times before new brake lining is needed. A simple adjustment of the equalizers will frequently make the brakes safe instead of dangerous.

Less important evils have been corrected

Glaring headlights have been forbidden by legislation in many states. It needs no argument to prove that defective brakes are even more of a danger. It will probably be but a short time when motorists will be compelled by law to have their brakes inspected at regular, stated intervals.

Aside from the broad civic interest which you will have in this movement it will also command your support for business reasons.

Where motorists are being urged so strongly to have their brakes inspected it is evident that this must result in increased brake lining business.

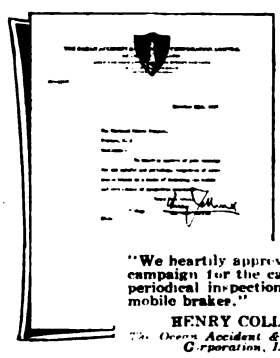
In closing, allow me to urge most strongly that you give this movement your active assistance, as well as your endorsement.

Sincerely yours,

H. F. Hanchett

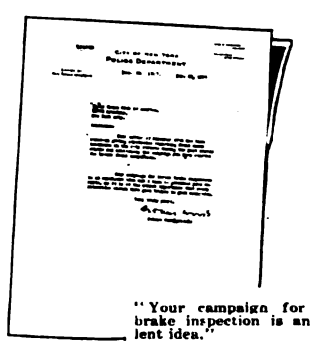
(General Sales Manager)

THERMOID RUBBER COMPANY
Trenton, N. J.



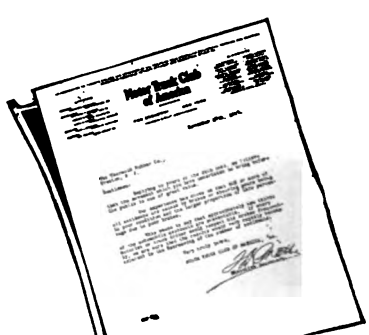
"We heartily approve of your campaign for the careful and periodical inspection of automobile brakes."

HENRY COLLINS
The Ocean Accident & Guarantee Corporation, Ltd.



"Your campaign for better brake inspection is an excellent idea."

ARTHUR WOODS
Former Police Commissioner New York City



"Our experience has shown us that 60% or more of all accidents are caused by brakes or steering gears being in poor condition."

T. D. PRATT
Motor Truck Club of America



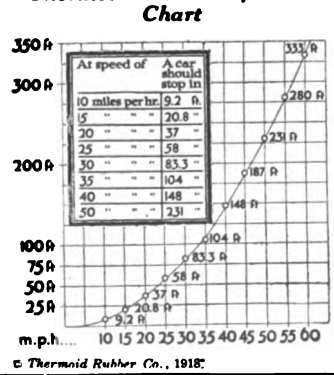
$\frac{V^2}{10.8}$ Will your car do this?

Automobile engineers have proven that when brake mechanism is right and road conditions average, any car should stop at distances and speeds given by the chart.

V^2 means the square of the velocity or speed of your car. 10.8 is the proven factor of retardation under average road conditions. This factor decreases on smooth slippery roads to 6.7 and increases as high as 17.4 on rough worn roads. The chart represents the average condition and other conditions can readily be figured by changing the factor within the given limits.

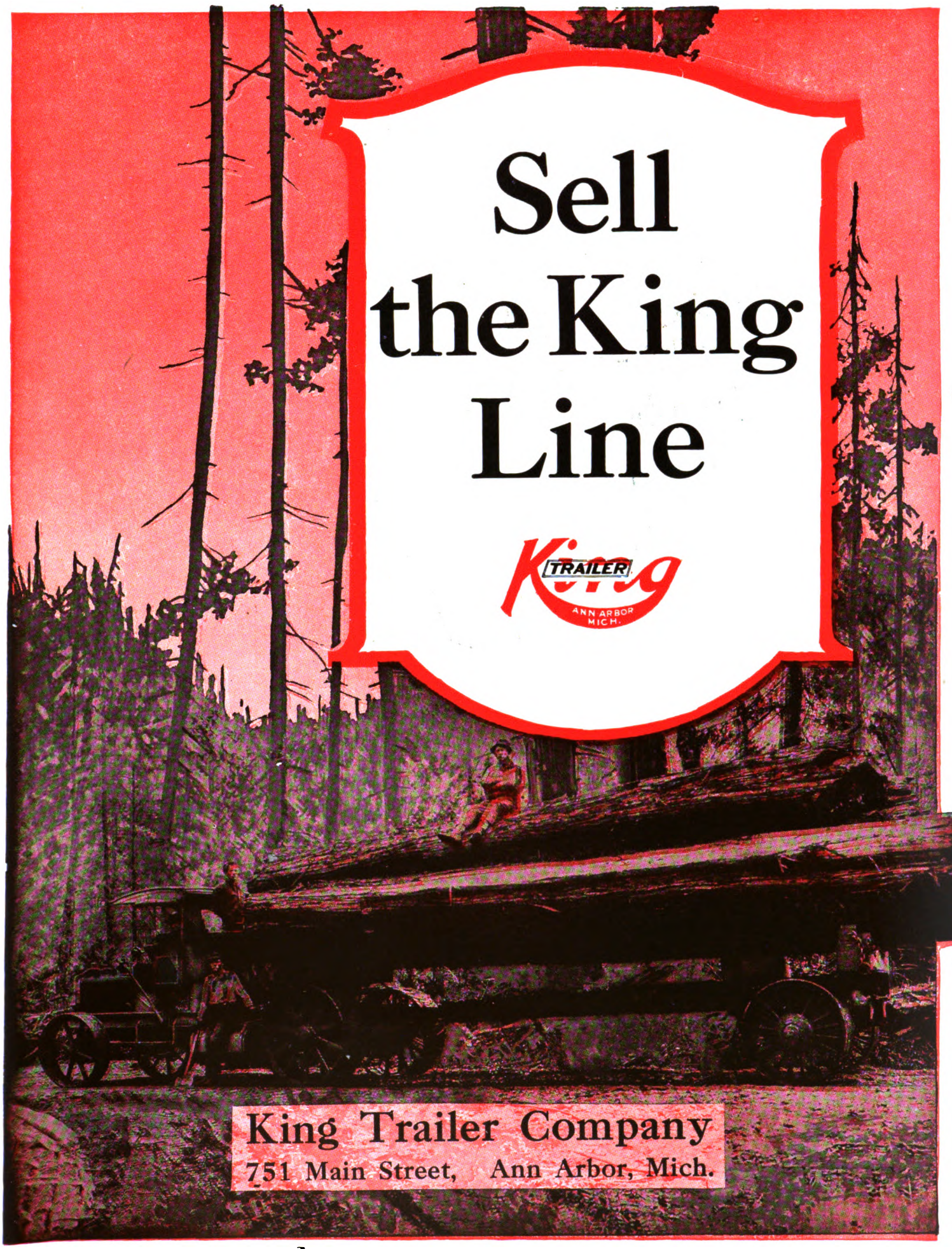
Remember that your brake mechanism is not "right" unless its brake lining has the ideal co-efficient of friction. The better the brake lining the quicker your stop.

Thermoid Brake Inspection Chart



© Thermoid Rubber Co., 1918

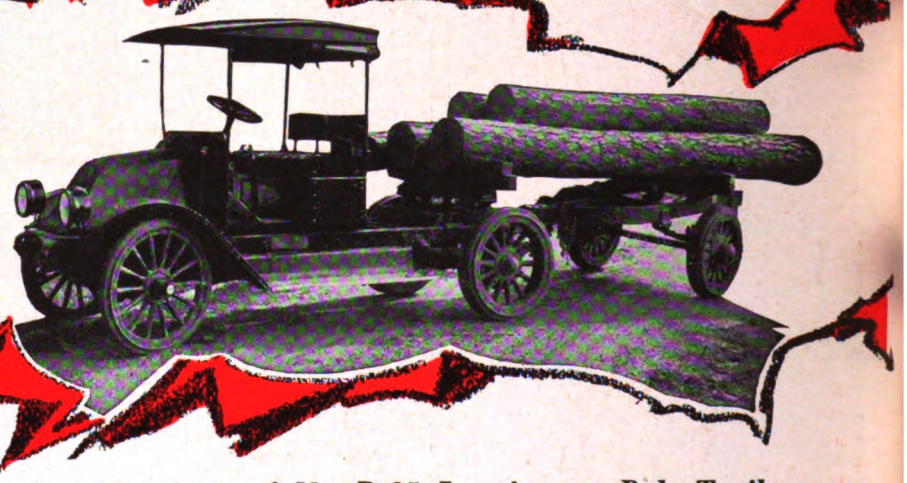
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King Trailers P

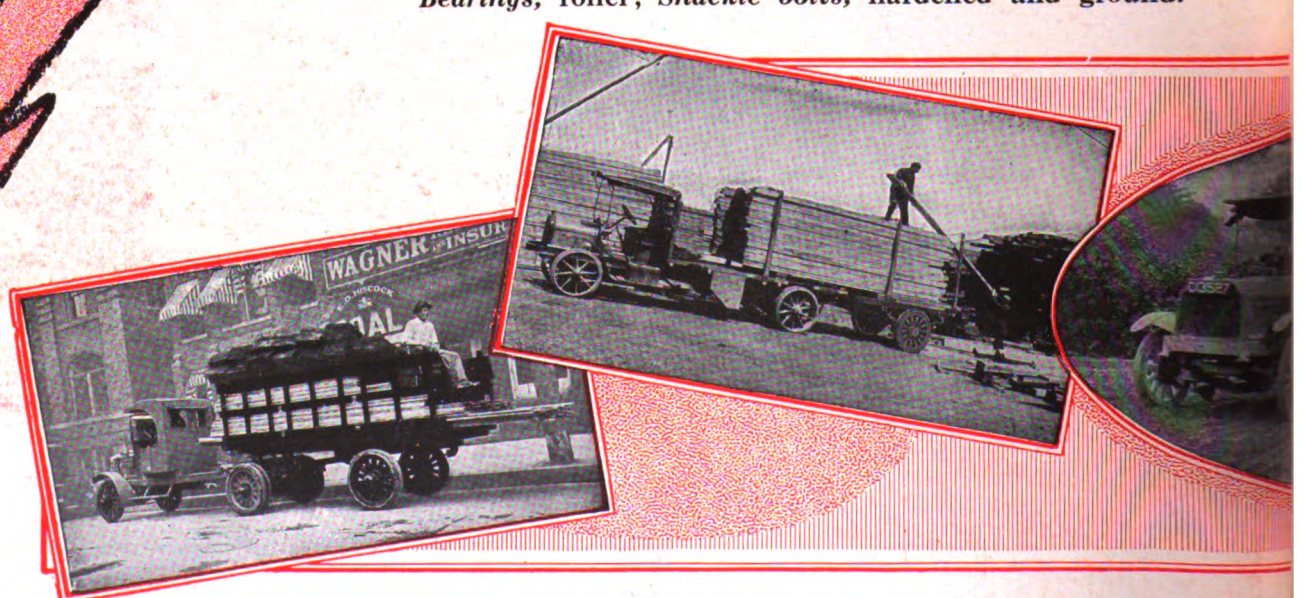
King Pole Trailers, Semi-Trailers and Light Trailers repr
in extra hauling profits. Attached to any high grade motor
pulling power into hauling capacity. For every ton that a motor tru



n the timber, King Pole Trail-
rs are being used to haul heavy
ogs. They are made in two
apacities and are built with
r without swivel bolsters and
xtenison reaches.

Specifications of No. P-25 Logging or Pole Trailer

Capacity, 3½ tons guaranteed. ***Permanent Reach,*** standard length 9 feet from bolster. Length up to 40 feet at slight extra cost if ordered. ***Adjustable bolster stakes.*** ***Frame,*** 6-inch channel; ***Tread,*** 56 inches; ***Width*** of bolster 60 inches; ***Height,*** 56 inches; ***Axle,*** alloy steel. 2 9/16 x 2 9/16 inches; ***Springs,*** alloy steel, 48 x 3½ inches; ***Tires,*** 36 x 6 inches; ***Bearings,*** roller; ***Shackle bolts,*** hardened and ground.



King-Irwin Fifth Wheels have universal motion and

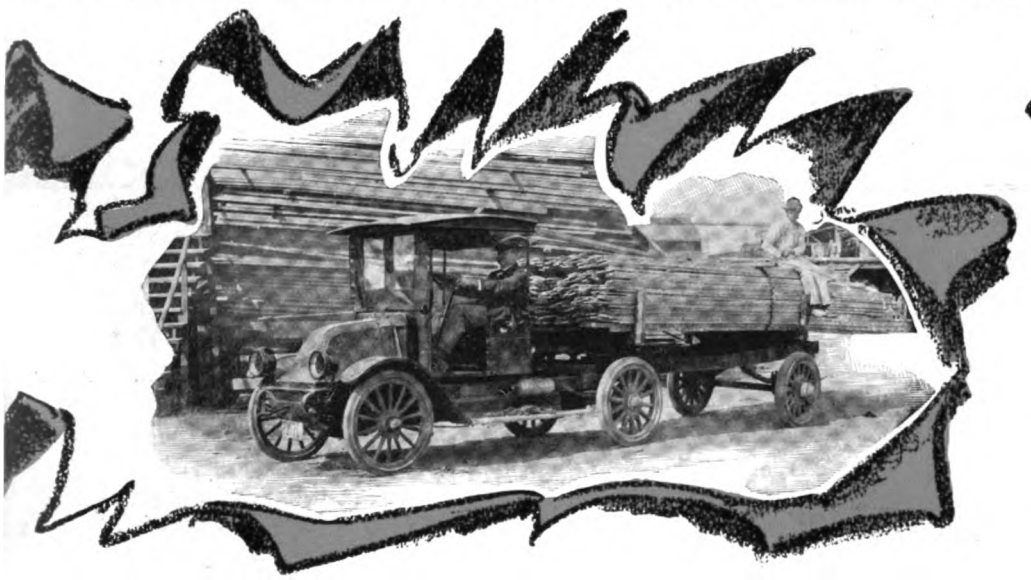
Valuable Territory Still Open

King Trailer Company, 751 Main St., Ann Arbor, Mich.

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roduce Profits

esent to the business man a definite dollars and cents value truck or pleasure car, they convert the tremendous reserve ck can carry, it can haul 3 tons on a King Trailer at same operating cost.

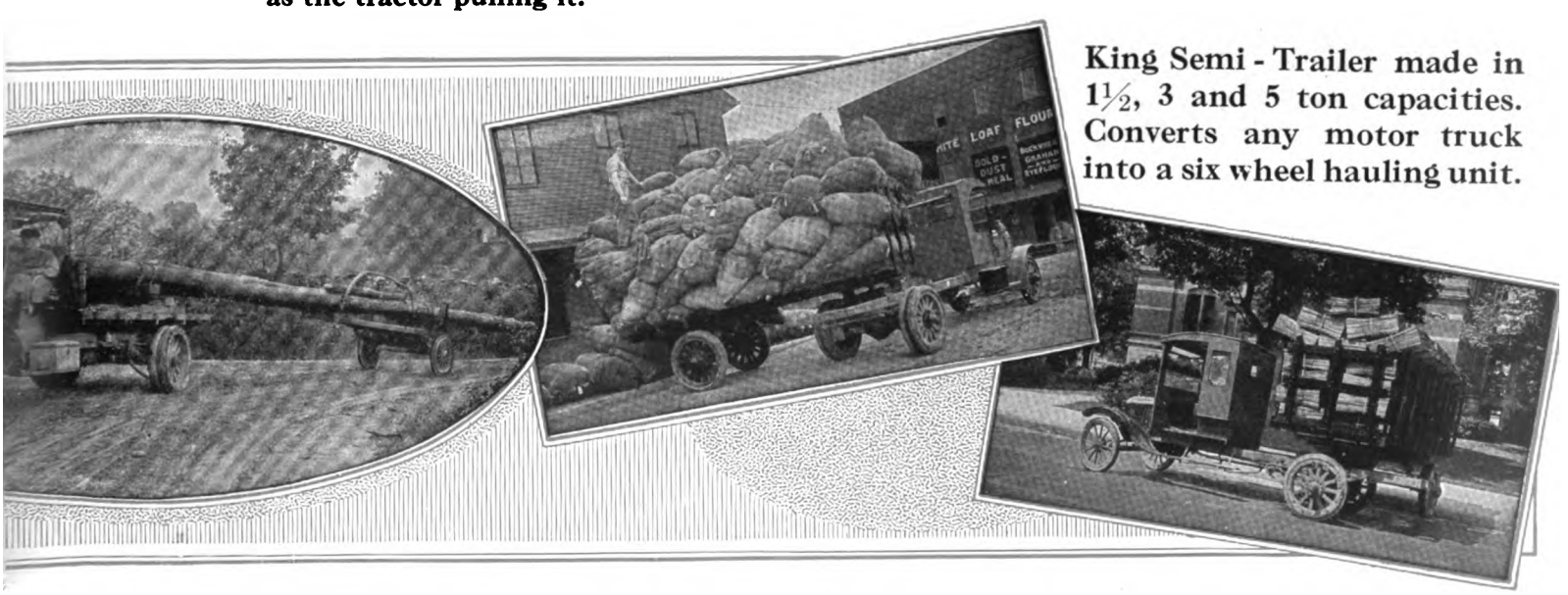


King Light Trailers are made in 1200 and 1500 pound capacities. They can be attached to any pleasure car and used extensively by dry goods stores, grocers, building supply dealers, implement dealers and farmers.

On Long Hauls

The most profit is made where tonnage moved is greatest. Speed is important. That is why the King Semi-Trailer is built for speed as well as strength. It is engineered and built like the auto truck and especially planned for the work at hand. The wheels are regular truck artillery type and fitted with solid rubber tires. Axles are non-heating and fitted with roller bearings. It is built to run as fast as the tractor pulling it.

King TRAILER ANN ARBOR MICH



King Semi-Trailer made in 1½, 3 and 5 ton capacities. Converts any motor truck into a six wheel hauling unit.

are shock absorbing. They make the Trailer Trail

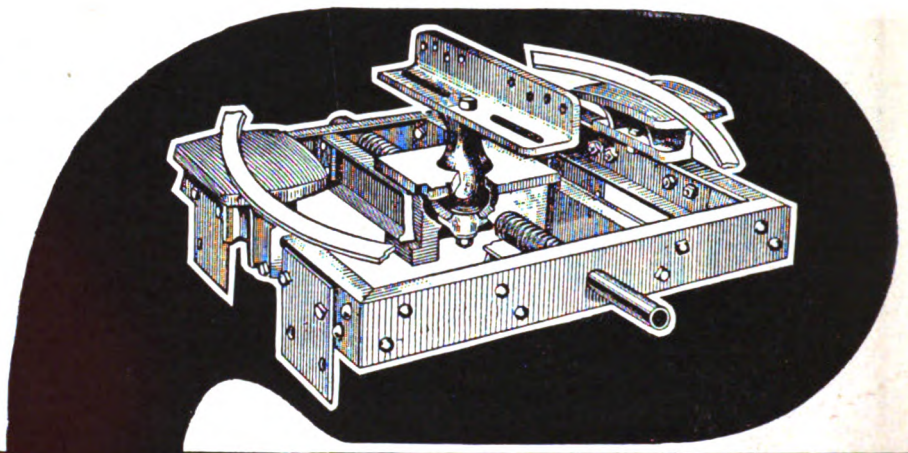
Write or Wire for Dealer Contract

King Trailer Company, 751 Main St., Ann Arbor, Mich.

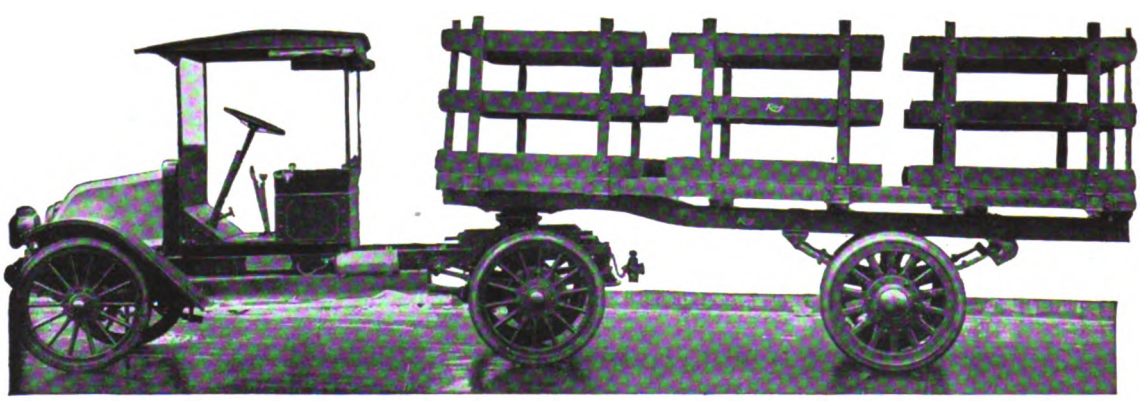
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The King-Irwin Universal Motion Shock Absorbing Fifth Wheel

Is the most satisfactory Trailer connection on the market, and is the most profitable for the dealer to handle. It should always be used as the connection between King Semi-Trailer and power unit. It absorbs the starting and stopping jars. It takes the strain off trailer, tractor and load. It is fastened to the tractor frame and truck directly over the rear axle. Connection between the tractor and trailer is a ball and socket joint. It enables the semi-trailer to round sharp corners, to back into a small space, and to withstand successfully all road shocks.



It Makes the Trailer Trail



This is a picture of the King Three Ton Semi-Trailer attached to a 1500 pound International Harvester Truck. Combined, the two units make a six-wheel 3-ton truck. The hauling efficiency is just as great as that of a 3-ton truck—the original cost is far less.

Specifications of the 3-Ton Model King Semi-Trailer

Body, 5½ x 14 ft.; Tread. 56 in.; Height, 47 in.; Tires, 36 x 5 in.; Springs, 48 x 3½ in.; Axles. 2 9/16 x 2 9/16 in.; Bearings, roller. This is going to be a wonderful year for Trailers. Business men realize the necessity of conservation; they appreciate the value of a hauling unit that will convert their motor trucks' tremendous waste pulling power into hauling capacity.

We have valuable territory still open for the man who can sell King Trailers.

KING TRAILER COMPANY

751 MAIN STREET - ANN ARBOR, MICH.

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SUNDERMAN

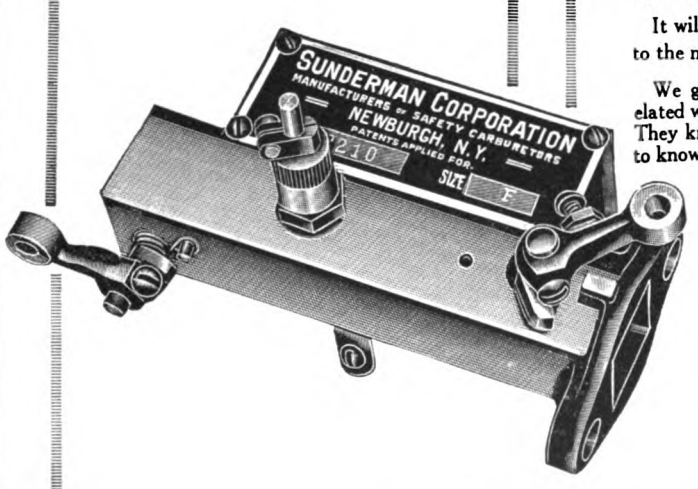
Vacuum Carburetor

$6

F. O. B.
Newburgh
For FORD and METZ

For all other cars the prices are $8 and $10, depending on the fittings required. Its service is supreme on all makes and models of cars.

See us at the Chicago Show— Armory Balcony, Booth 5.



Your Carburetor Is Leaking

unless you've already equipped your car with a Sunderman.

You'd sew up a hole in your pocket, or else buy a new pair of trousers, wouldn't you?

Every time you turn your motor over, you're letting some good, hard-earned coin of the realm slip away from you without getting anything for it, unless you have a Sunderman Carburetor.

You Can Stop This Leak With a Postal Card

Just tell us to send you a carburetor (give the make and model of your car) and prove to yourself what the Sunderman will do.

It will positively save from 30 to 50% in your gasoline or other fuel consumption—that means it will give you from 43 to 100% mileage increase. We're proving it every day.

It will give your motor more power than it ever had—unless it is ready for the junk pile. Even then it will give it more pep, punch and pull than it has had in a long while.

It will give you better hill-climbing—the surest claim we make—an absolute, unfailing certainty. It will give your engine greater flexibility—a wider range of speeds, low, high and intermediate, taken without "bucking": a smooth, swift acceleration or slowing down that has hitherto belonged only to the sixes, eights and twelves.

It will give your car a livelier getaway, a quick, sure pick-up, responding to the motor's demands like a great-hearted athlete who's bound to win.

We get in every day's mail testimonial letters from car owners who are elated with the Sunderman Carburetor's performance in power and economy. They know—and we know—what the Sunderman will do. We want you to know—you have ten days to prove it. Send us an order today.

Dealers: There is no better or more favorably known carburetor on the market today. We back it with consistent advertising. We make fine selling arrangements with the right people. See us at the Chicago Show, or write at once.

Sunderman Corporation

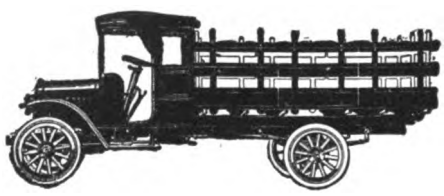
9 Chambers Street Newburgh, N. Y.

Western Office: 403 Kresge Building, Detroit

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Axle and bearings of a two-ton truck

Prices (F. O. B. Detroit) Chassis $985 With cab and windshield, $1025; Combination box, stake gate body, $1075; Stake gate, $1080; Express canopy, $1095.



Certainty—that is what you want—a truck you can sell confidently to near neighbors. Millions of dollars' worth of truck business will be done in the next few months; you know it. But you are afraid of the "*ought*-to-be-good" unproved trucks that suddenly are being offered on every hand. You can't take chances. You have a local reputation to build up and maintain.

HERE is certainty for you—a truck that has PROVED its merits, its capacity, its durability, its economy. It is the Maxwell; a truck design throughout, not an adapted passenger chassis. It has ten feet length of loading space; trouble-proof, mud-proof transmission; and the famous time-tried Maxwell engine, the most efficient engine of its type in the world. It has proved itself, in the severest use, "the best truck for the worst roads" . . . Every one of them you sell will enhance your local reputation. . . . Enormous production is fast being overtaken now by enormous orders. . . . Wire us today for our offer to dealers.

Most miles per gallon Most miles on tires

MAXWELL

ONE-TON WORM-DRIVE

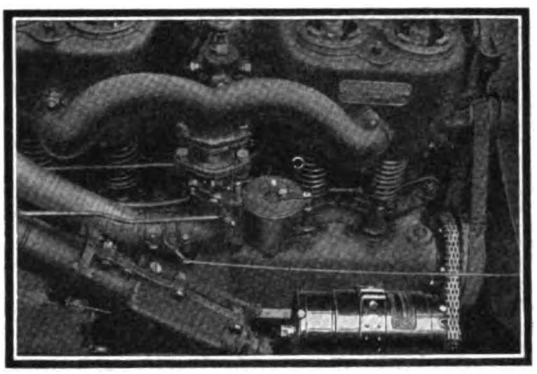
TRUCK

Maxwell Motor Sales Corporation Detroit, Michigan

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CONSERVATION

Making the Old Car Young



A Typical Dynamo Installation on a Mercedes Engine

A New Business for Dealers

THOUSANDS of "never-wear-out" makes of cars will be put back in active service next year and made "young" again by the fitting of new bodies, etc., and, of course,

Installing a Starting and Lighting System

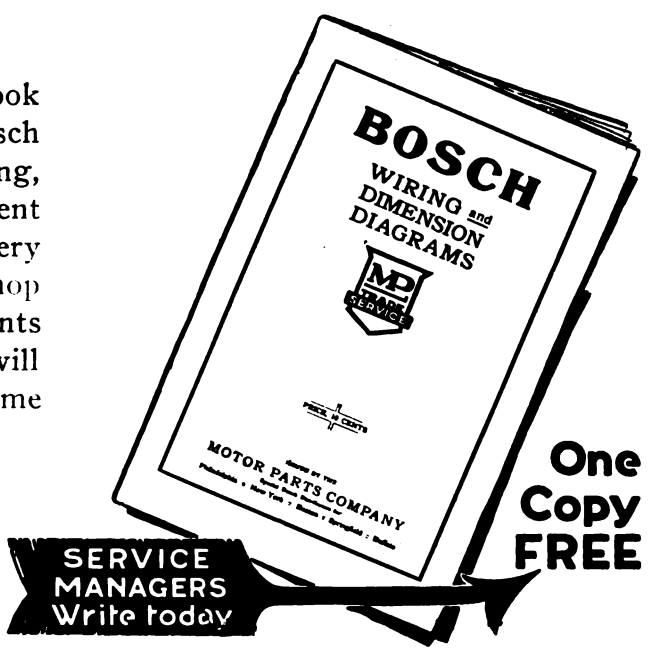
The well-known Bosch Magneto Company's starting and lighting system can be supplied with complete attachments for fitting to the many makes of motor cars not electrically equipped.

A new line of work—good profits—and a practically untouched field awaits live concerns taking advantage of our facilities to supply.

Write us today; mention make, year and model of car, and we will quote you prices. Now—today—is the time to start—be the first in your territory.

A Valuable Book Free

We have compiled and published in book form the only complete collection of Bosch Wiring and Circuit Diagrams of starting, lighting and ignition systems—93 different diagrams—invaluable to repair men—every service manager should have one—no shop complete without it. Books are 10 cents each, but to the Service Manager we will send **one copy free**, but for a limited time only.

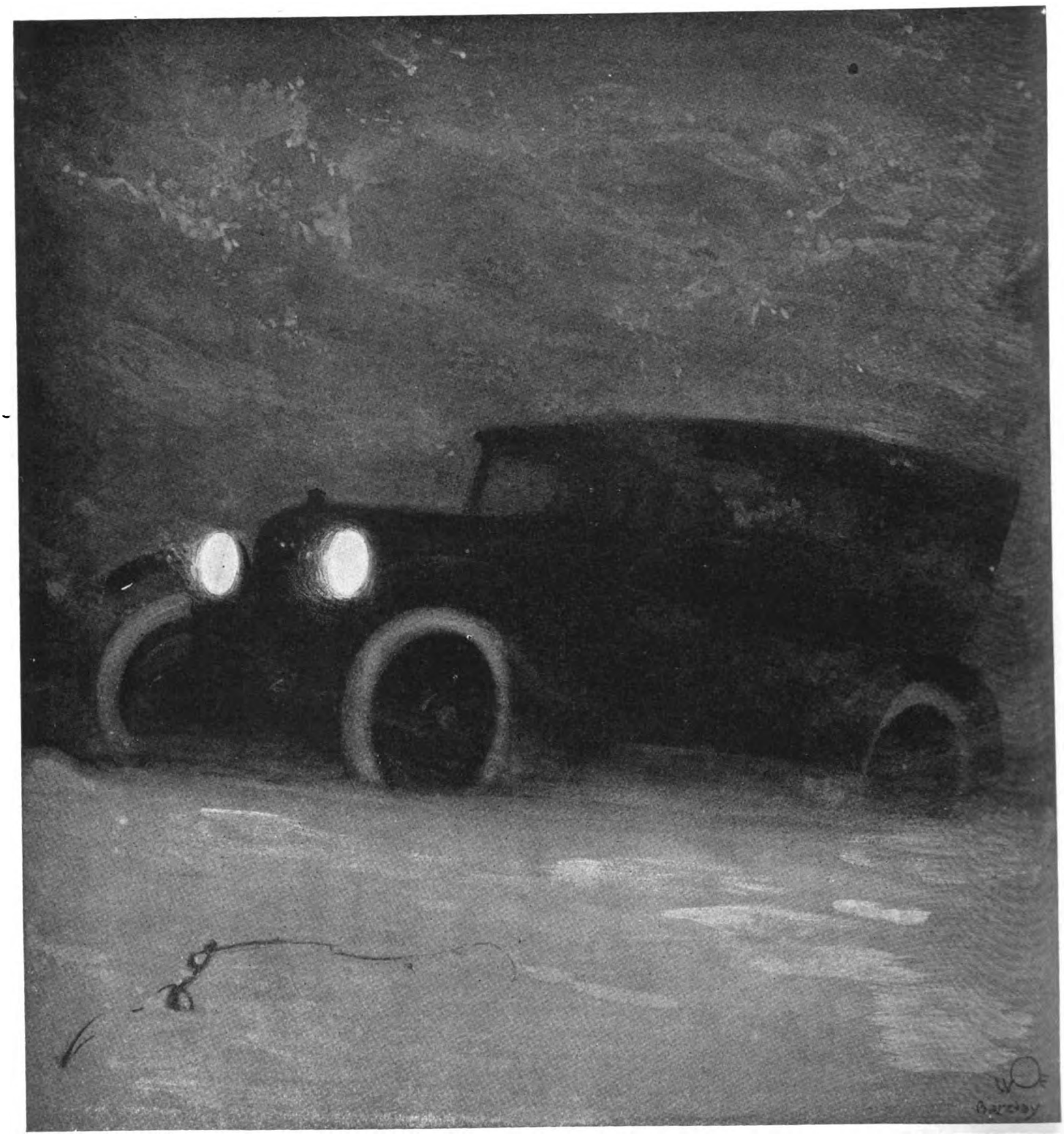


Motor Parts Company

845 N. Broad Street, Philadelphia, Pa.

New York **Buffalo**
Boston **Springfield, Mass.**

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The Comfort Car

Hupmobile

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Look for the Brand

The Willard brand on the box means Threaded Rubber Insulation inside the battery.

It's more than a name. It's a sign of reliability, responsibility and protection to the buyer who wants the genuine Willard Battery with Threaded Rubber Insulation. The Willard brand means a hotter spark — a quicker start — brighter lights, and vitality to carry overload and work overtime.

In the Threaded Rubber Insulation of the Still Better Willard — in the expert workmanship — in the complete Willard service — there is greater assurance of long battery life.

Willard Service

Willard STORAGE BATTERY

Willard Threaded Rubber Insulation

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Rolling Stock

¶ For many years, you have ridden in Standard Steel Railroad Cars with utmost security. No cars ever built could better withstand the racking, jarring, pounding of rail traffic. No cars could carry humanity with greater safety across the continent. ¶ Now the brains, skill and vast resources back of the Standard Steel Car are building the Standard Eight. The result — a flying wedge of steel and style; a powerful car of superlative riding comfort. Your first turn behind the wheel will fill you with irresistible desire to own the Standard Eight. ¶ Distributors and dealers in territory still open are invited to call on any of our representatives for a ride in this truly wonderful car.

Open Models, $2450
f. o. b. Butler, Pa.

Standard Steel Car Co.
Pittsburgh, Pa.



STANDARD "8"

STANDARD "8"

The Magneto Equipped Eight

STANDARD "8"

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18 Years of Leadership in Spark Plug Manufacture





The Price has Not been Increased



Mosler Vesuvius Plug prices have not been advanced in two years!

This is a striking illustration of our policy of looking at things from the dealer's standpoint, and of *factory preparedness,* which to a great measure makes possible this liberal dealer policy, in the face of tremendous increase in the cost of all materials.

The kind of business we want, and the kind that will be of most benefit to us, is the kind that's going to stick long after the war is over.

Mosler will not raise prices, but regardless of price, the Vesuvius is a *real* spark plug to get behind and *push.* It is a quality plug and carries a real profit margin.

MOSLER VESUVIUS PLUG

The Vesuvius Display Helps will work for you, if you will use them. They help connect the big publicity campaign with your store. They are free for the asking. Write today.

A. R. MOSLER & CO. - - - New York City

Manufactured under A. R. Mosler's Patent No. 1,218,298, Date Mar. 6, 1917 Other Patents Pending

THE INDESTRUCTIBLE PLUG GUARANTEED TO OUTLAST THE MOTOR

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List price for all sizes up to 3¾ in. diameter, $1.25 per ring.

With each complete set of rings a *Munger Piston Re-grooving Tool* and a *Munger Ring Insertion Tool* are supplied without extra charge.

Even a novice can install Munger "Always Tight" Piston Rings without breakage. Slip them over the Munger Ring Insertion Tool and they slide easily into the groove. These unique rings quickly conform to the shape of the cylinder and remain *always* gas- and oil-tight because with the Munger "Always Tight" Expansion Joint they retain their perfect fit until completely worn out.

Accessory Dealers and Garage Men!

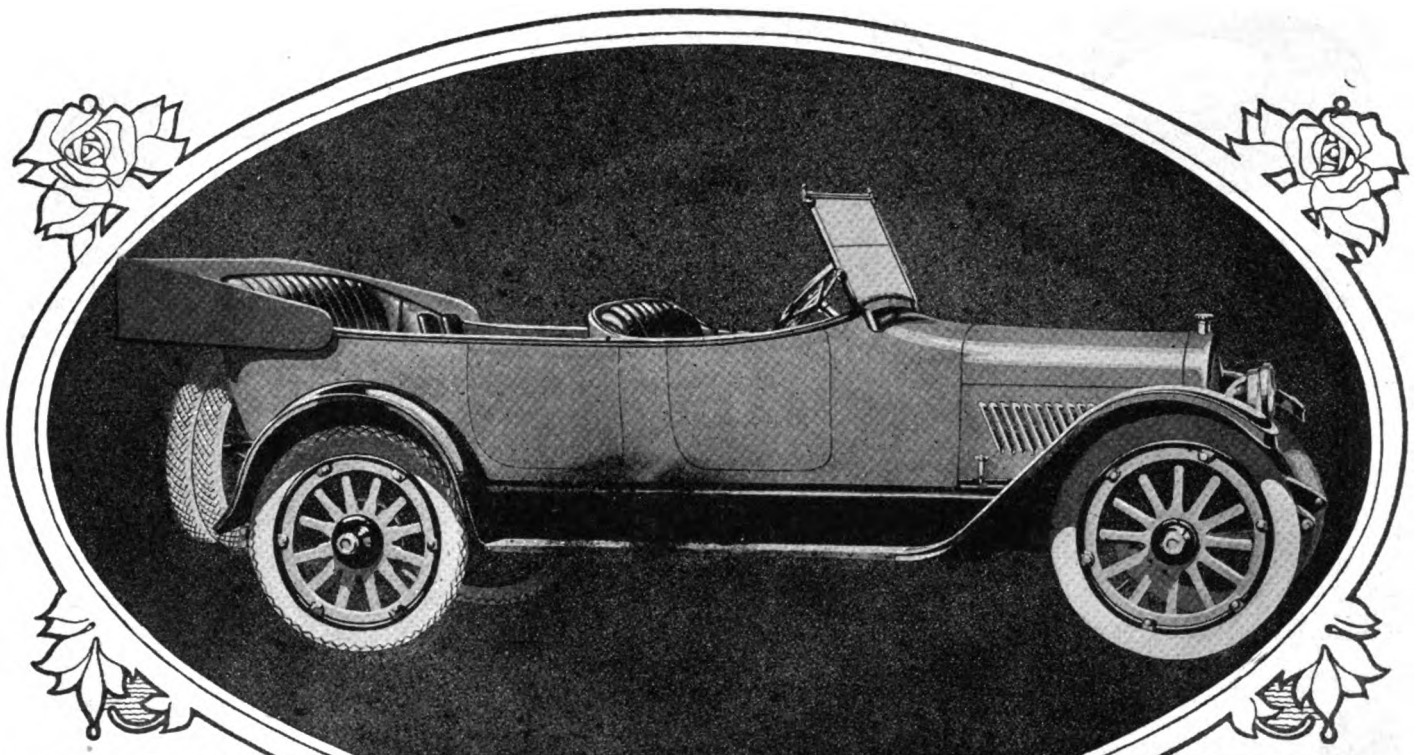
Any jobber will supply you with Munger "Always Tight" Piston Rings. Order them now.

SPLITDORF ELECTRICAL CO.
NEWARK, NEW JERSEY

Splitdorf Branch Houses and Service Stations:

Atlanta,	10-12 E. Harris St.	Newark,	278 Halsey St.
Boston,	68 Brookline Av.	New York,	7 West 61st St.
Chicago,	64 E. 14th St.	Philadelphia,	210 N. 13th St.
Dallas,	402 S. Ervay St.	Pittsburgh,	5943 Ellsworth Av.
Detroit,	1295 Woodward Av.	San Francisco,	1022 Geary St.
Kansas City,	1827 Grand Av.	Seattle,	1628 Broadway
Los Angeles,	1215 S. Hope St.	Toronto,	469 Yonge St.
Minneapolis,	816 Hennepin Av.		

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BEAUTY-POWER

Oldsmobile Sets the Pace 20th Year

THERE is one solid, indisputable reason why the Oldsmobile Eight stands out *alone* in its price class and its quality class:

It is the one tremendously successful light weight, eight-cylinder car at a moderate price.

Every factor of desirability is built into this Oldsmobile—beauty of contour, beauty of finish, distinctive appointments—riding comfort, on long, underslung rear springs and deep upholstery of plaited French leather—utility, quick transportation, stamina.

A Real Performer

The marvelous high-speed 58 h. p., eight cylinder engine, shows immense power on hills, over broken roads, through sand, mud or snow—lightning getaway and amazing speed when desired—remarkable flexibility in traffic—a smooth, continuous flow of overlapping power impulses when throttling down in traffic to a mile or two an hour.

The Livest Dealer Proposition Today

The Oldsmobile offers the fullest measure of motor car *value*. There are still some open memberships in our successful dealer organization. Write or wire the factory for particulars—or see us at the Shows.

OLDS MOTOR WORKS LANSING, MICHIGAN

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Stan

WITH resources and facilities of a vast and varied nature we are equipped to serve the motor car industry in many ways, usual and unusual.

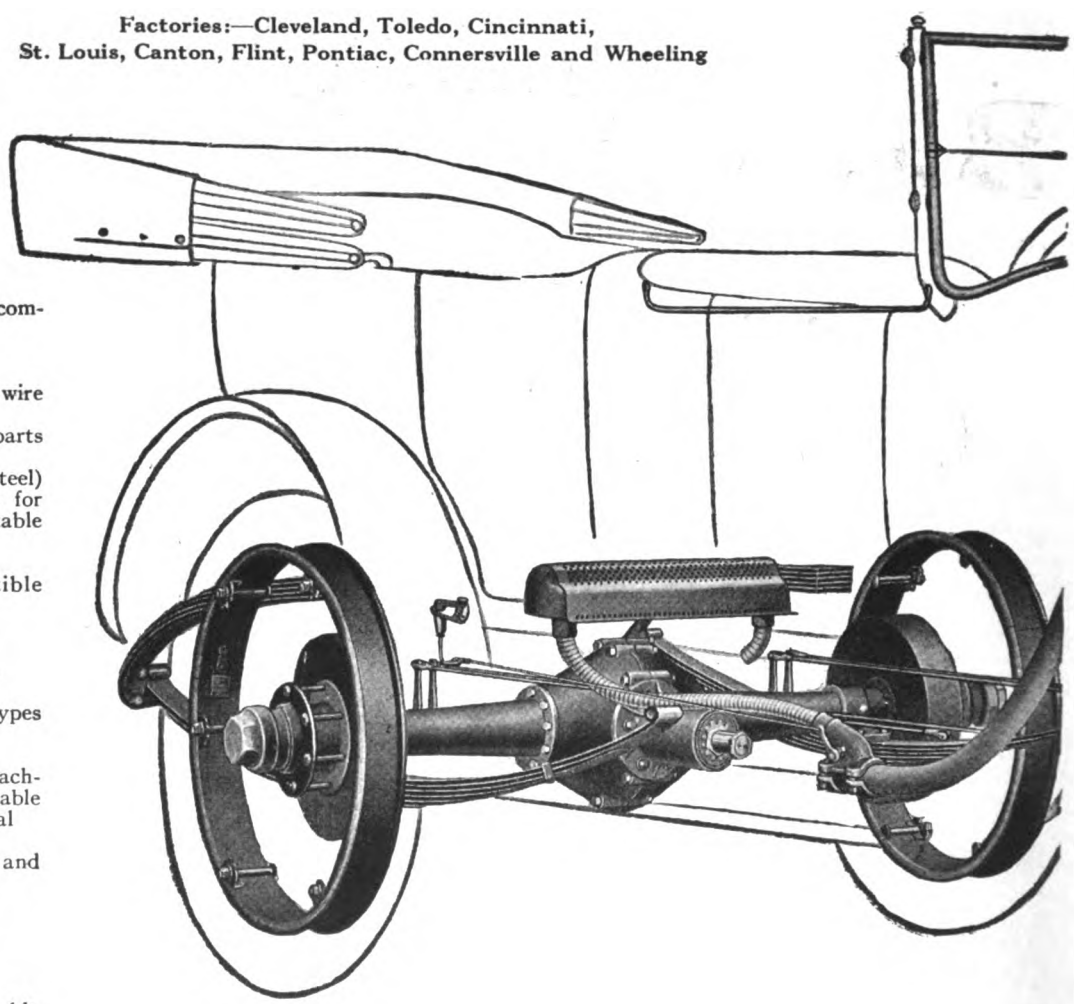
We seek to make your problems our problems and to evolve the solution thereof in a manner so distinctively successful as to establish mutually profitable relations that will prove enduring.

Tell us what problem you have that will put us to the test—now? Let us demonstrate our equipment to serve you.

Factories:—Cleveland, Toledo, Cincinnati,
St. Louis, Canton, Flint, Pontiac, Connersville and Wheeling

For Motor Vehicles

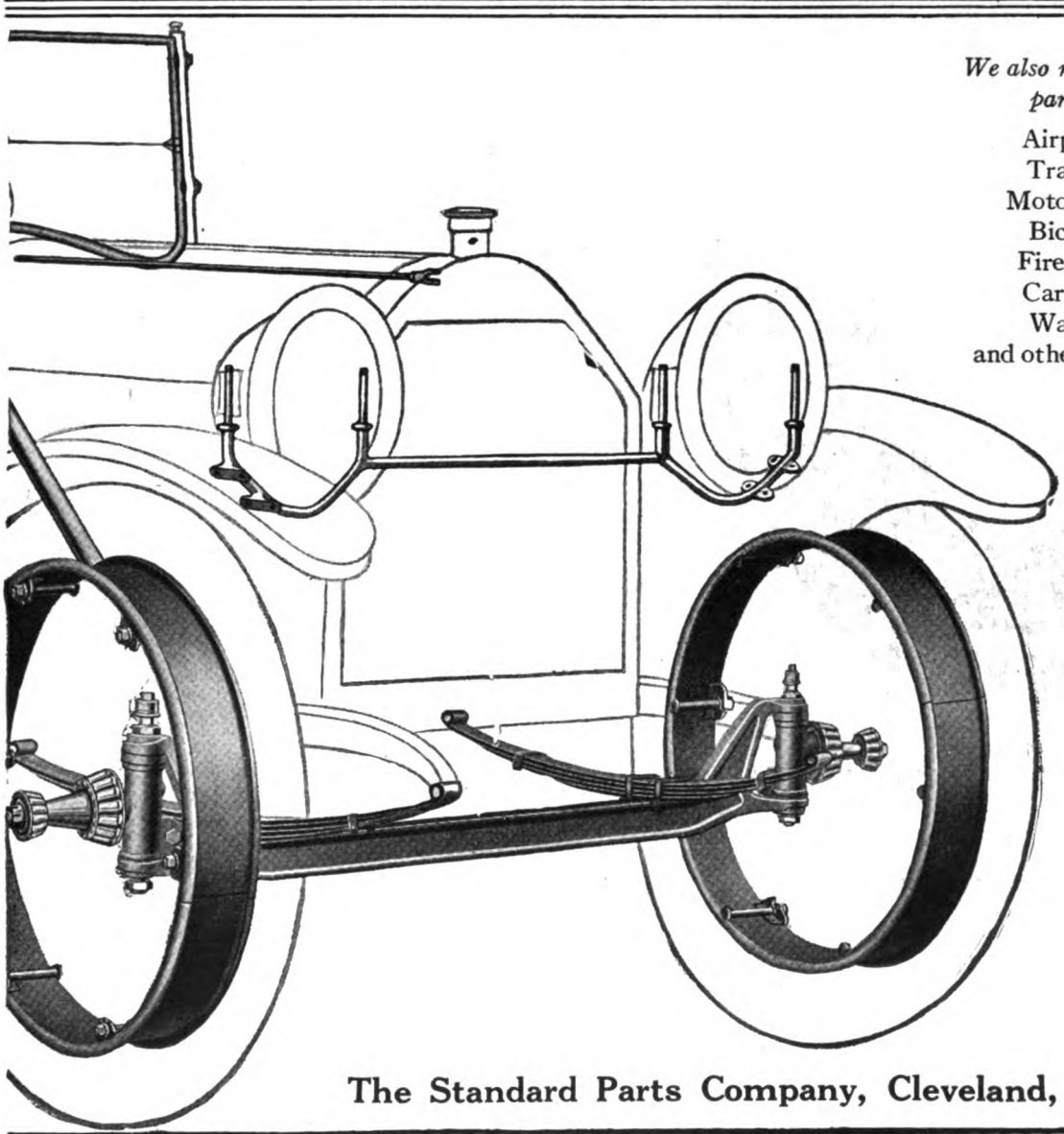
Axles
Axles (dead rear)
Bearings
Brake rod assemblies complete
Clincher rims
Cranks (starting)
Detachable rims for wire wheels, special
Electric welding of parts
Exhaust tubes
Felloe bands (S. A. E. Steel)
Flanges and fittings for attaching demountable rims
Formed Tubing
Forgings for convertible trucks
Heaters
Hubs
Ignition wiring tubes
Mast sleeves
Millimeter rims, all types
Oil tubes
Radiator rods
Rims—clincher, detachable and demountable for single and dual equipment
Starting gear rings and boxes
Straight steel tubing
Steering gear tubing
Springs (regular)
Springs (thin leaf)
Tail pipes
Tire bases in demountable and pressed on channels
Torsion tubes
Truss rods
Tubing (straight and formed)



The Standard Parts Company, Cleveland, Ohio

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dard parts



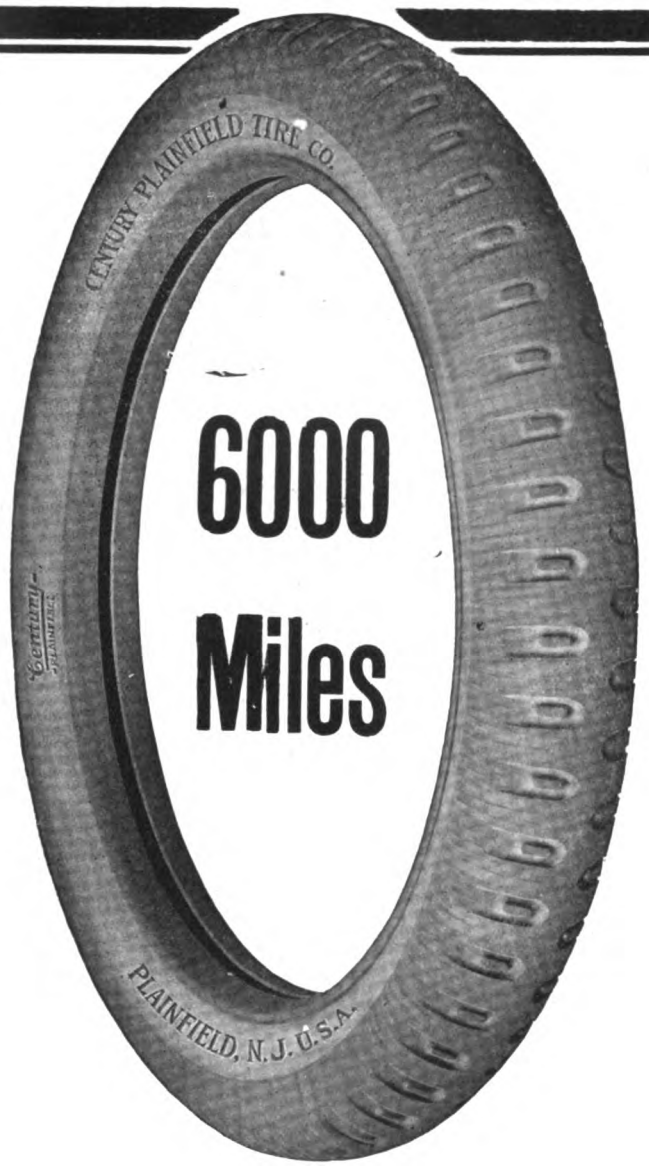
We also manufacture parts for

Airplanes
Tractors
Motorcycles
Bicycles
Fire Arms
Carriages
Wagons
and other vehicles

The Standard Parts Company, Cleveland, Ohio

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The Tire That Goes Out and Gets Business



Every time you sell a Century-Plainfield Tire you're sending out a salesman.

The man who bought comes back—certainly—he's a booster, but better yet—his friends come, too.

Century-Plainfield popularity is founded on performance. They have an inbuilt capacity to negotiate extra miles. Under all conditions they give the very limit of wear.

"Quality First"—that's the Century-Plainfield slogan and on that formula they're built.

The very finest quality of materials in the world go into their makeup and these are combined and fashioned into shape by time-seasoned experts.

No whit of anything that would make for better tires has been neglected.

Century-Plainfield agencies may be secured by high class dealers—and with the privilege of handling this great line will go the complete co-operation of the Century-Plainfield organization and an opportunity for generous and continued profits.

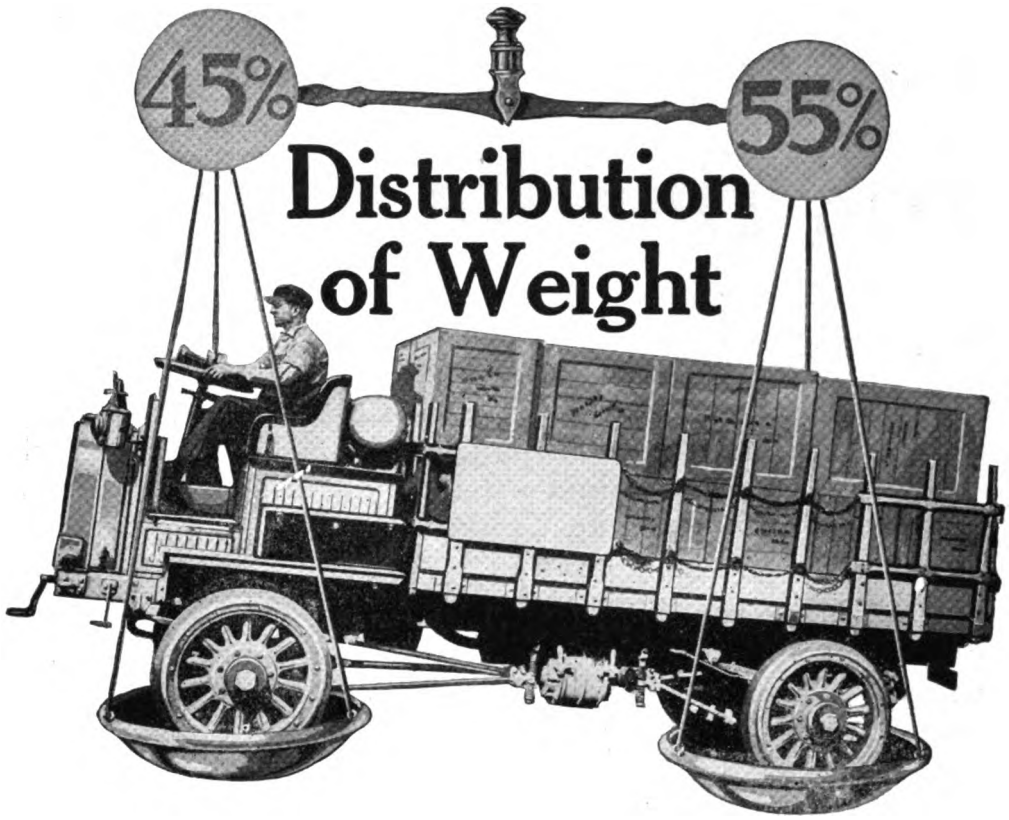
CENTURY-PLAINFIELD TIRES

CENTURY-PLAINFIELD TIRE CO.,

Century-Plainfield Tire Company, a subsidiary of the Rubber Insulated Metals Corporation, Exclusive manufacturers of the RIMCO Rubber Products by the EL-CHEMCO process.

Plainfield - - - - - - - - - New Jersey

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THE principle of the four wheel drive as applied in F-W-D Trucks adds greatly to the dependability of the truck. With power in both axles the load may be brought forward and the weight distributed as in

FWD TRUCKS

45 percent of the weight is carried on the front axle and 55 percent on the rear. On other types of trucks 75 to 95 percent of the load is on the rear axle. This is necessary to provide traction sufficient to drive the truck.

Even distribution of weight permits of shorter wheelbase, which means easier handling in traffic. It also equalizes the strains, adding to the life of the truck. It equalizes the wear on tires and saves them to such an extent that tire manufacturers give the same guarantee on single rear tires for F-W-D Trucks that they give on double tires for rear drive of the same capacity.

The new illustrated catalog describes exclusive construction of F-W-D Trucks and how it produces dependability and economy in operation—write for it.

FOUR WHEEL DRIVE AUTO COMPANY
Department P **Clintonville, Wisconsin**

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THE TIRE RATE BOOK

for January is now ready—bigger and better than ever.

Filled with valuable data of vital interest—profit-making interest—to every man in the tire trade who is concerned in selling and maintaining the products of the various factories throughout the United States.

Contains, among its other valuable features, 143 tire price-lists of the various tire producers throughout this country. This listing information of tires and tubes is but a part of the information it contains.

Everyone who sells tires or tubes should have a copy if he would be properly informed. You need THE TIRE RATE BOOK. It is published four times every year—January, April, July and October.

Subscription price $1.00 per year. Single copies 35 cents each.

Although we are printing 11,000 copies of this issue, it represents only a limited supply over the actual subscription orders now on file, and it is therefore important that you act at once, and get your order in before the edition is exhausted.

Send this order to us at once.

Date.....

THE TIRE RATE BOOK
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Please enter my order for.....{Subscriptions / Copies}
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for which I enclose $.....
Subscription price (4 issues) $1.00 per year.
Single Copy price 35 cents

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Address.....

City.....

THE TIRE RATE BOOK

Published by

THE CLASS JOURNAL COMPANY

239 West 39th Street

New York City

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DILLON MULTI VISION LENS

Motorists!

Here is a Lens that *does* what others *claim* to do

THE Dillon Multi-Vision Lens has no prismatic surface, no colored glass, no obstructions of any kind, to obstruct the light you need at night.

Instead, this marvelous lens embodies a new method of light distribution, which enables you to secure the fullest possible road illumination, and yet the lens itself is glare-free.

So scientific is its design that you actually secure TWICE the lighted area. Because of its projecting face you get a greater degree of side light, and its central bull's-eye (which concentrates and magnifies the light) gives you a brilliant though glareless long-range shaft of light.

Dealers!

This, at last, is the Lens your trade will want — and *boost*

A SATISFIED customer is your best asset. Your whole stock moves more quickly, your profits increase as well, if your patrons find your products satisfactory.

The Dillon Multi-Vision Lens proves not only the ideal lens to buy but the most profitable lens to sell. The Dillon serves as a nucleus for a fast-growing, high-class trade, because it justifies the claims of both maker and seller.

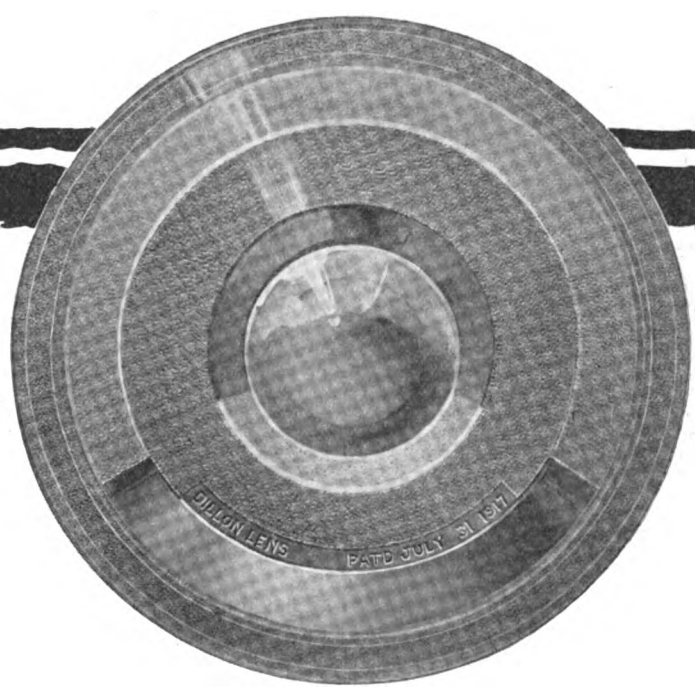
Don't forget to mail the coupon below and secure full information on the Dillon Lens sales proposition, as well as particulars regarding the co-operation offered Dillon dealers. Send the coupon at once.

Motorists—Dealers—Send for literature on the Dillon Multi-Vision Lens.

NATIONAL DISTRIBUTING BUREAU INC.

241 Oliver Bldg., Pittsburgh, Pa.

Exclusive Distributors of the Dillon Lens



$3.50 Pair

Any Size Same Price Anywhere in U. S. A.

7

Pittsburgh

MAIL THIS COUPON

National Distributing Bureau,
241 Oliver Bldg., Pittsburgh, Pa.

Name .....

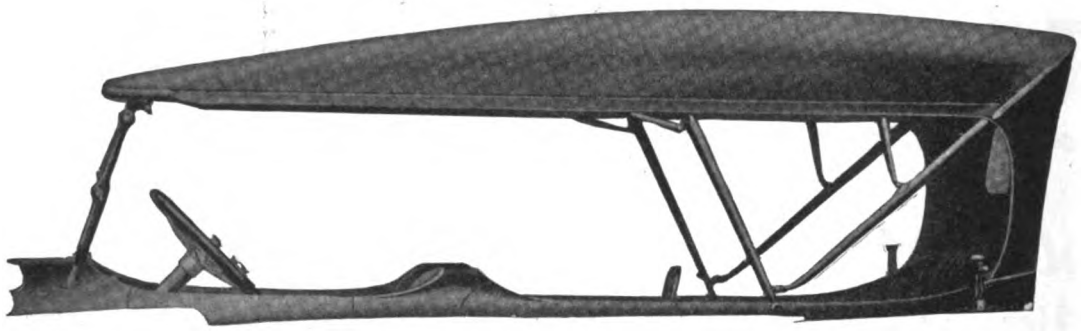
Address ..... MW 1-31

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Just Sign and We'll Send You Full Particulars

When writing advertisers please mention Motor World—It identifies you

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A DrideK Top Does Help to Sell Cars

A DrideK Top Increases the Value of a Car Far More Than It Costs

TRADE DRIDEK MARK REG.

The Most Remarkable Top Material Yet Produced

Now is the time that you should look into DrideK and have it on hand to meet the demand which is sure to come.

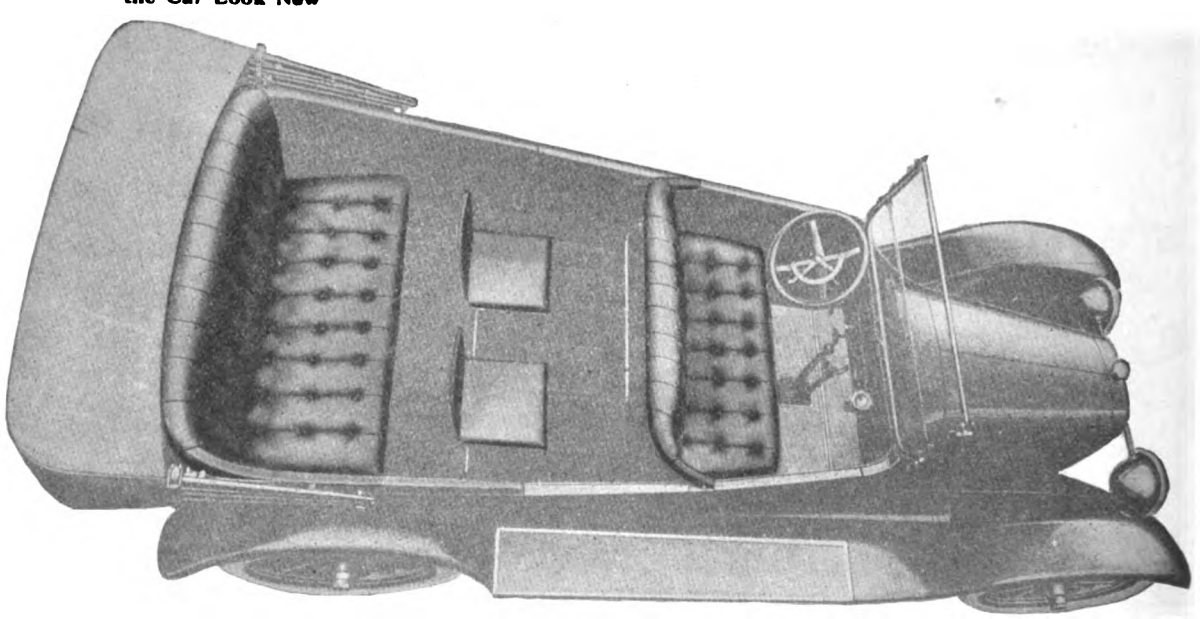
DrideK is very pliable, easy to work and will not scratch or chafe. It makes a remarkable top.

Send for samples and prices. Then get DrideK in stock—it will make money for you.

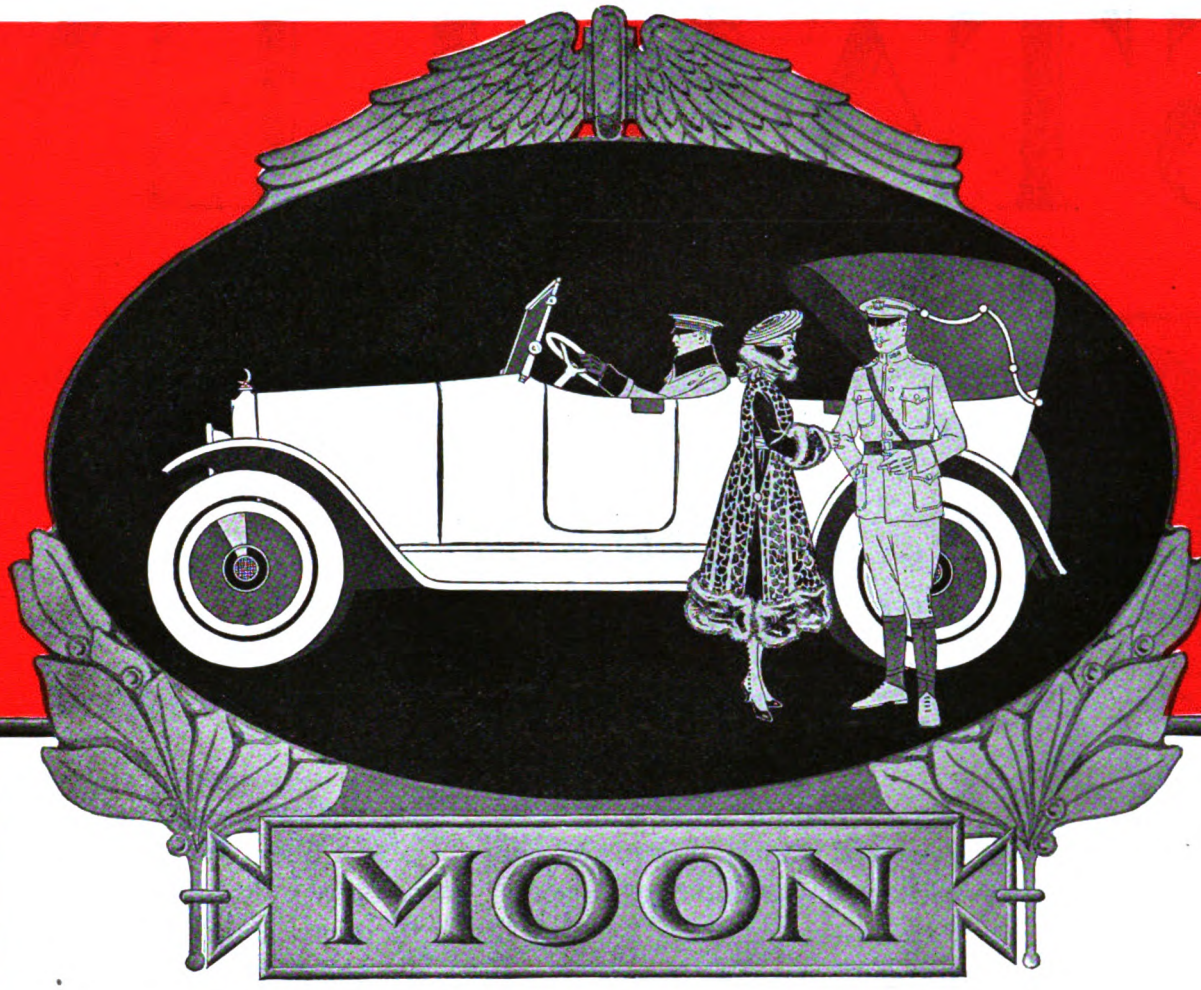
L. J. MUTTY COMPANY

BOSTON, MASS.

DrideK Upholstery Makes the Car Look New



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The New 1918 Moon Cars

Six-66

7-pass. Touring and Club Roadster

$1850

f.o.b. St. Louis

At the head of the motor car column by right of the refinements that set the automobile apart—whether you stand off and admire the smart-lined dash and beauty of it, or enjoy its mechanical perfection and elasticity of power from your vantage point of deep-cushioned comfort behind the steering wheel.

In the front rank of this motor car dress parade also range the other Moon models—the coupe, cabriolet, sedan and victoria.

The New Moon Six-36

A popular priced Moon for the kind of conservation that means saving without a single sacrifice.

$1195

f.o.b. St. Louis

The Moon light Six, the building of which necessitated big preliminary building—the erection and equipment of a 10,000-car addition to our plant. The demand we discounted—it was obviously there. No man is driving the ordinary Four as a matter of preference. Our ambition was that of supplying him with all the terms "Six" implies at about the price of a Four. Hence our plans for producing Moon Six-36's on a big scale—it *had* to be done. Look at some of the specifications and judge for yourself of the closeness of the price quoted:

114-inch wheelbase—Continental motor—walnut instrument board, front and rear; solid; beautifully finished—smart slant to windshield—sweeping double cowl—true honeycomb radiator; Fedder; stylishly high type—Spicer joints—Timken bearings.

Dealers, write or wire about locations—a few choice ones still open.

MOON MOTOR CAR COMPANY

St. Louis, U. S. A.

Prices subject to change without notice

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STANLEY

STEAM 22nd year CAR



The Power That Moves the World

We Are Doing What All Other Makers Are Struggling in Vain to Do

We are making a car which runs with a soft, smooth, gliding motion—without any noise or vibration at any speed—without any shifting of gears—and with a driving power which is absolutely uniform and continuous—and whose fuel is kerosene. But far beyond that, we are doing

What No Other Maker Is Even Attempting to Do

We are delivering this absolutely uniform and continuous driving power without any gears to shift, without clutch, flywheel, carburetor, ignition system or self-starter, and without any substitute devices to perform the functions of these. The functions themselves are simply not a part of the Stanley car. And we are doing it with

Only 32 Moving Parts in the Complete Vehicle

—with only two cylinders, with only 894 revolutions a minute at sixty miles an hour, and with no controlling device whatsoever except a finger throttle. There is absolutely nothing for the operator to do to control the speed of his car except to move this finger throttle forward and back on its quadrant, and apply the brakes. This is the ideal performance that you have been longing for.

Other makers have recognized your longing, and have made honest endeavors to achieve the ideal. But the limitations of the internal explosive engine are such that to adapt it to a self-propelled road vehicle means the interposition between the engine and the driving wheels of a clutch, a flywheel, a gearshift and a transmission; and without any possibility of storing power except in the flywheel.

It means trying two, four, six, eight and twelve cylinders; it means trying electric gear shifts, electric final drives, friction drives, two-speed rear axles, over three thou-

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sand engine revolutions and upwards of thirty thousand piston revolutions a minute.

Makers of multiple cylinder cars, recognizing the fundamental superiority of steam for self-propelled road vehicles, have advertised that their cars were "almost as flexible as steam."

The Ideal Performance of the Stanley is based on three fundamental facts. First, the engine is geared directly and permanently to the differential; the engine speed is the same as the car speed; there is no such thing as shifting gears, and therefore no such thing as a clutch or a flywheel and no such thing as disconnecting the power from the load; to "change speeds" you merely admit more steam to the engine.

Second, the steam enters the cylinders and exerts its force expansively, not explosively, and not in a series of "impulses," not even "overlapping impulses," but in a smooth, continuous torque on the crankshaft, which means a constant flow of driving power.

Third,

The Fuel, Which Is Kerosene

is converted, not into mere instantaneously dissipated power, but into steam, which is stored in advance in great abundance, and can be instantly applied to the driving wheels by merely opening the finger throttle, without waiting for the power to be built up into a flywheel, and which delivers its very maximum of power under the most adverse conditions.

Your Customers Want This Wonderful Performance

—they would want it, even if it were achieved by the addition of still more contrivances to their present conventional car. How much more, then, do they want it if it is achieved by eliminating all those hardships and handicaps which have been most fearsome to them?

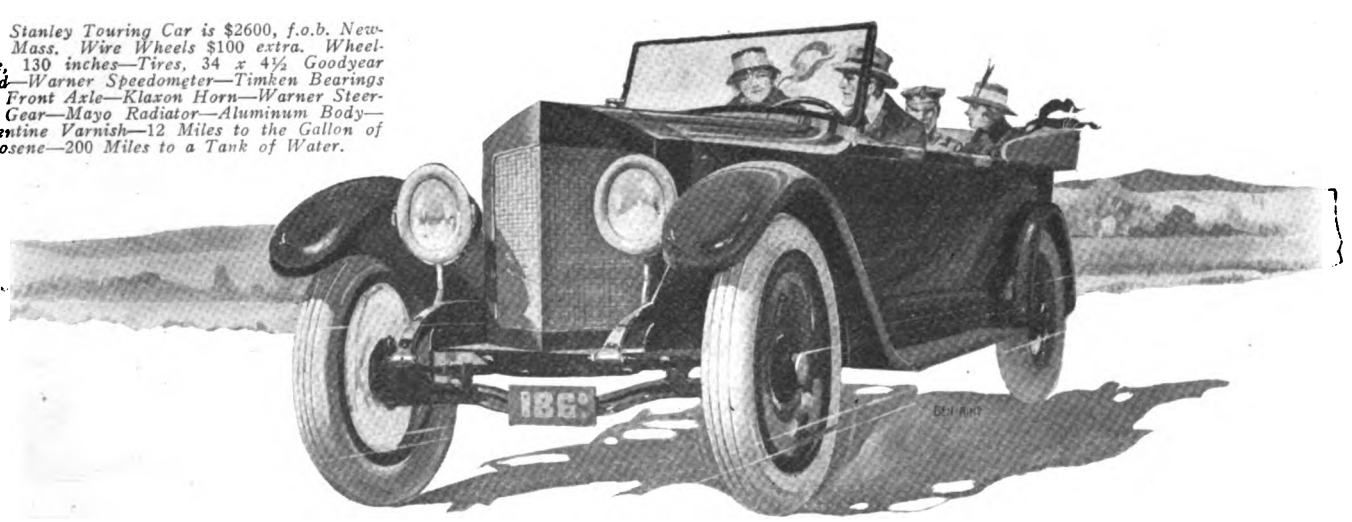
Ride in a Stanley—drive it yourself. Then and then only can you realize what this Stanley performance means to experienced motorists.

You don't want to miss getting your customers *exactly what* they have been longing for by overlooking the Stanley, do you? We shall be glad to hear from you, and to send our booklet.

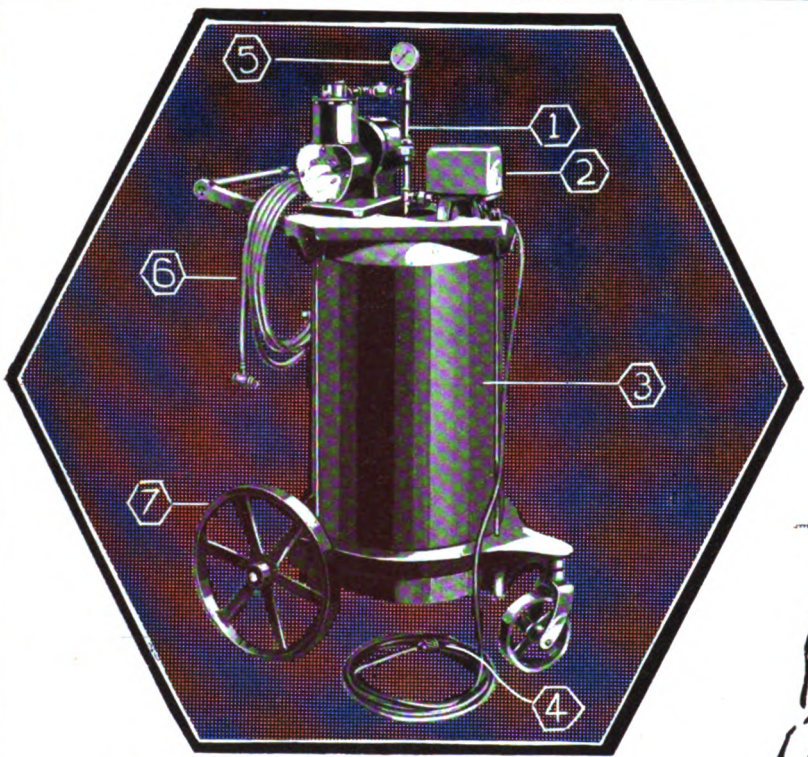
STANLEY MOTOR CARRIAGE COMPANY

NEWTON, MASSACHUSETTS

The Stanley Touring Car is $2600, f.o.b. Newton, Mass. Wire Wheels $100 extra. Wheelbase, 130 inches—Tires, 34 x 4½ Goodyear Cord—Warner Speedometer—Timken Bearings and Front Axle—Klaxon Horn—Warner Steering Gear—Mayo Radiator—Aluminum Body—Valentine Varnish—12 Miles to the Gallon of Kerosene—200 Miles to a Tank of Water.

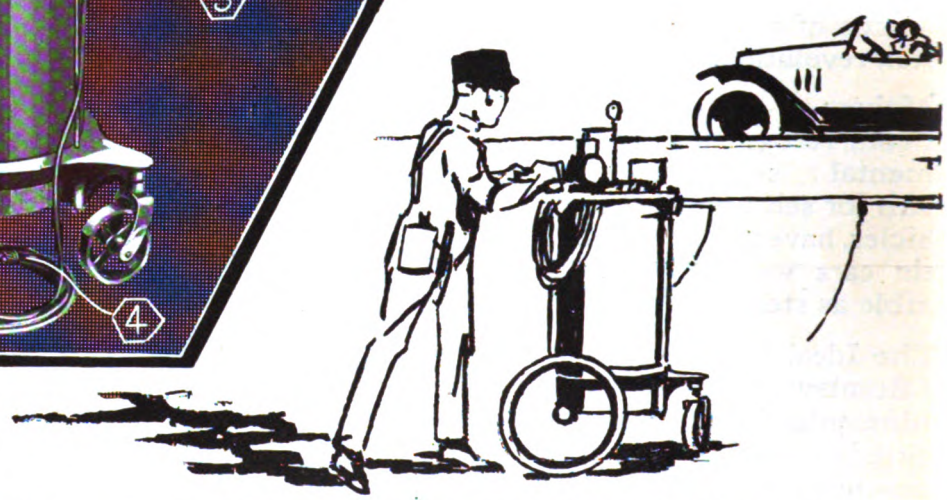


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Portable Tank and Pump

Take the Air to the Tire



For the Garage or Salesroom—a handy and extremely practical combination Air Tank and Pump Outfit, Portable—can be wheeled anywhere, Weatherproof—can be used in doors or out, Vertical—takes up very little space, equipped with automatic cutout and a No. 2 Size.

LECTROFLATER
ELECTRIC AIR COMPRESSORS

Note These Important Features

1. No. 2 LECTROFLATER Electric Air Compressor; the quickest, most economical and most powerful electric compressor of its size in the world. Will compress sufficient air to inflate ten tires at a cost of one cent for current—*one hundred tires for ten cents.* Guaranteed to pump only cool, clean, dry air. Grease—not oil—lubricated. No oil level to maintain. Air cooled by forced draught. No liquid to freeze or evaporate. All working parts self-contained under one housing. No exposed belting, shafts or gears.
2. Automatic Pressure Switch: Starts the compressor refilling tank when pressure drops under 130 pounds and "cuts out" when pressure reaches 150 pounds.
3. Welded and brazed in all seams. Tank tested to 300 pounds hydraulic pressure. Will contain enough air to inflate ten tires from 40 to 80 pounds pressure without refilling. Finished in green and black enamel with nickel trimmings.
4. To install and operate pump merely attach electric cord connection to any electric light socket; that's all. Uses either alternating or direct current. Pump controlled by automatic pressure switch. Fifteen feet of electric cord furnished.
5. Large accurate pressure gauge indicates pressure in tank at all times.
6. Twenty-five feet high pressure hose fitted with Standard tire chuck.
7. Furnished with husky metal wheels for hard service on cement floors or with rubber tires for use on hardwood or tiled floors, sales rooms, show rooms, etc.

The Lectroflater line of air compressors includes pumps of many sizes and capacities and combination units of many different kinds, including curb outfits, portable or stationary tank and pump outfits—outfits for indoor or outdoor use, at prices that range from $65.00 up. Write to-day for descriptive literature, prices and complete catalogue.

Jobbers: Write for special sales proposition. Catalogue, electrotypes and mailing literature available.

The Black & Decker Mfg. Co.
107 South St., Baltimore, Md., U. S. A.

Distributors in Canada: Northern Electric Company LIMITED **Montreal**

English Distributors: R. A. ROTHERMAL, 18 Poland Street, Great Marboro, London, Eng.

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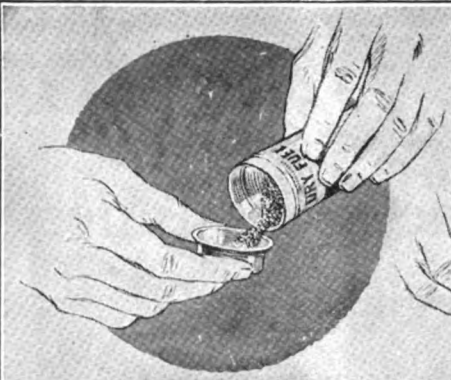
NEW—DRY FUEL ADAMSON

MODEL "E"

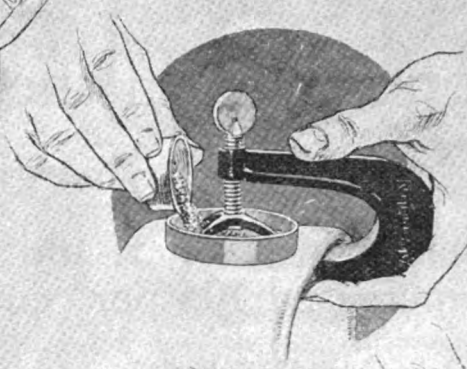
5-MINUTE VULCANIZER

For Tube Punctures

NO FLAME IT GLOWS



Fill the measure with Dry Fuel—



Empty it into the Vulcanizer—



Touch a match and the Dry Fuel burns with a hot glow—no flame.



$1.00

Complete Outfit includes 5-Minute Vulcanizer, can of Dry Fuel, box of 12 patches, measuring cup, and directions for repair. Extra box of 12 patches, 25c. Extra fuel, 12 charges, 50c.

AND NOW—the only vulcanizer for tube punctures that is sure in its work, whether you use common gasoline or dry fuel. Vulcanizes a patch *permanently* in five minutes. Adamson Dry Fuel is flameless; it burns with a hot glow; is furnished in a handy can; does not absorb dampness; and remains uniform under all conditions. This handy outfit weighs complete only one pound. Every motorist will want a New Adamson 5-Minute Vulcanizer.

NEW PRICES ON ADAMSON VULCANIZERS



Model "U" for Cases and Tubes. **$2**



Model "T" for inner tubes only. **$1.50**

GREATLY INCREASED PRODUCTION

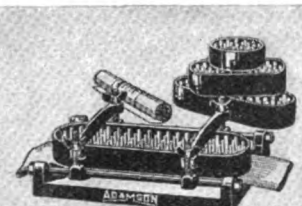
and the fact that we make Adamson Vulcanizers complete in our own plant, has cut down our manufacturing costs and enables us to make a substantial reduction in prices.

Adamson Vulcanizers are universally known as the simplest and surest in operation. More than a million motorists are now using and recommending them today.

At the old prices, they outsold all competing makes. At these new prices, and with the Dry Fuel feature of Model "E", Adamsons will sell faster than ever. They will pay you a handsome profit.

Ask your Jobber for Adamson Vulcanizers, and Adamson Repair Gum. Write us for Adamson Catalogs, Displays and Selling Helps.

ADAMSON MANUFACTURING CO.
EAST PALESTINE, OHIO
We also make Adamson Ford Brake Shoes, Lined and Unlined



Model "S" for private garages and repair shops. **$12**



Adamson Repair Gum for all portable vulcanizers.

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The Empire Tire Dealer

has the best proposition in the tire business

1. Because he gets the fairest margin of profit.
2. Because he has a fast seller, and a repeater—Empire sales increased 105 per cent in 1917.
3. Because he has behind him a unique and powerful advertising campaign. The reason our advertising is signed with the name "The Empire Tire Dealer", is because we want to turn the reader's attention to the local dealer who has tires to sell.
   Thus the national advertising becomes a *local force* for each Empire dealer.

THE EMPIRE RUBBER & TIRE CO., Trenton, N. J.

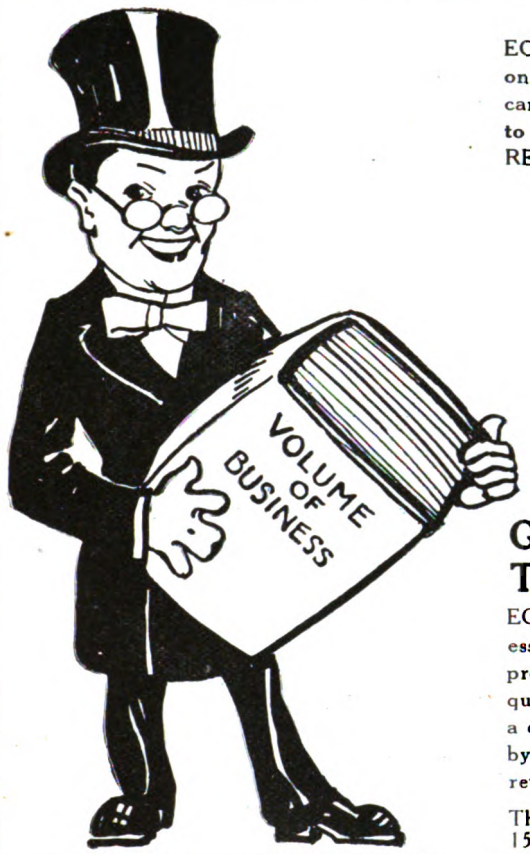
Empire Tires and Tubes



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ECON-O-KLEEN

Volume of Business Daily Grows



"A $1 Can of ECON-O-KLEEN Treats 112 Gallons of Gasoline."—Poco'Kleen

ECON-O-KLEEN has taken hold. Already its sales are close on the mark originally set for three months. Jobbers, dealers, car owners have it. Its value is proved, when **58% of the sales to date have been repeat orders from jobbers and dealers.** RE-ORDERS mean success.



Goes In With The Gasoline and Makes The Carbon In The Motor Go To Work

ECON-O-KLEEN improves your gasoline by adding to it the essential qualities for perfect combustion that are lacking in present-day fuel. It took 5 years to determine what these qualities are—but they are now included in ECON-O-KLEEN, a combination of the right chemicals churned into a compound by shafts and paddle blades that rotate at the rate of 3000 revolutions per minute.

The introduction of pure oxygen under 1800 lbs. pressure for 15 minutes, completes ECON-O-KLEEN—the compound that, mixed with gasoline, produces a fuel 12 to 15% more efficient than ordinary commercial gasoline.

The Enthusiasm of Jobbers Puts the "Sterling" Mark on ECON-O-KLEEN

$1 Per Can



The jobbers have to be shown. They have been shown with ECON-O-KLEEN. They know that the success and satisfaction of car owners—the results and savings that make them continuous ECON-O-KLEEN users—insure a continuous demand. They know that ECON-O-KLEEN makes good.

Jobbers know their ground before they buy. When they have bought—as they have, with almost immediate repeat orders—they have put their "Sterling" Stamp on ECON-O-KLEEN.

USE THE COUPON NOW. If you handle supplies, or use them, it will pay you to KNOW ECON-O-KLEEN. ($1 enclosed is for trial can—money back if not satisfactory.)

Econ-O-Kleen Fuel Company
Thief River Falls, Minnesota

ECON-O-KLEEN FUEL CO.
Thief River Falls, Minn.
Send me complete information and free illustrated literature explaining every reason for ECON-O-KLEEN. $1 enclosed is for trial can and use of ECON-O-KLEEN. Money back if not satisfactory.

Name .....

Address .....

Check here if you are a dealer ☐ jobber ☐ or supplyman ☐, for confidential discounts.

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GOODELL-PRATT

1500 GOOD TOOLS



HACK SAWS

There is a vast difference in Hack Saw Blades. The high quality Goodell-Pratt Flexible Hack Saw Blades are particularly adapted to work which is apt to subject them to severe twists and side strains.

As our Flexible Hack Saw Blades, made from the best quality hot-rolled sheet steel, undergo a process whereby the Backs and Teeth are hardened, while the Centre is left soft, the result is a quick-cutting, serviceable blade that will not break under any ordinary usage.

There is a Goodell-Pratt Hack Saw Blade for every class of work. Write for our Hack Saw Frame and Blade circular, which describes our entire line.

Goodell-Pratt Company

Makers of Mr. Punch

Greenfield, *Toolsmiths* Mass., U.S.A.

Makers of Mr. Punch

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THE SIOUX WAY

Trade Mark Reg. U. S. Pat. Office

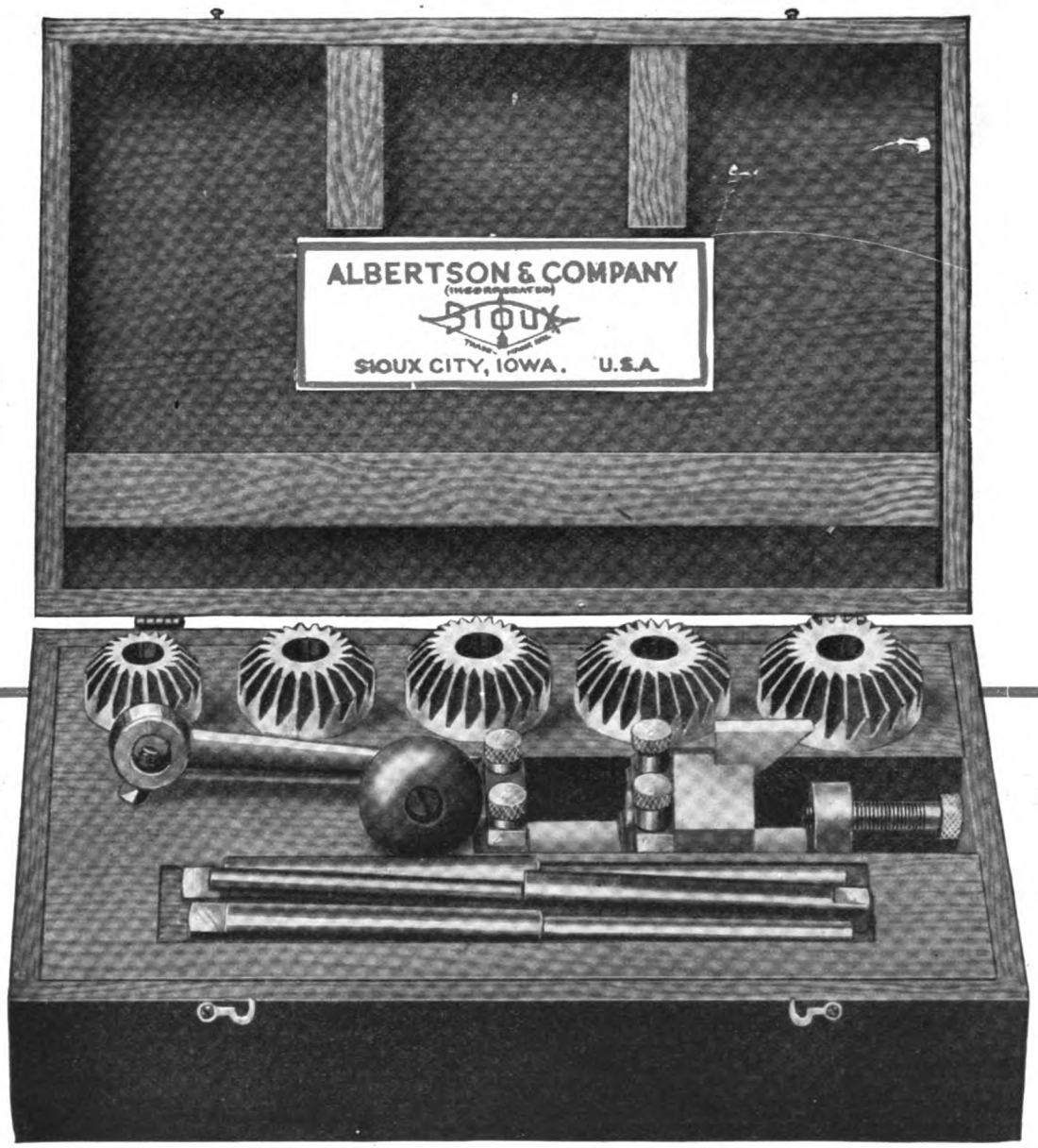
Superior Tools
BACKED BY
Real Service

Sioux Valve Seating Tools are superior in working principle, material and workmanship. Every one is a time-saver and a profit-booster.

We Keep Them Sharp. Send your Sioux Tools to us at any time. We keep them properly ground and sharpened. You pay only the transportation charges. Get them from any live jobber.

COMPLETE SET AS ILLUSTRATED $22.50
LIBERAL DISCOUNT TO DEALERS

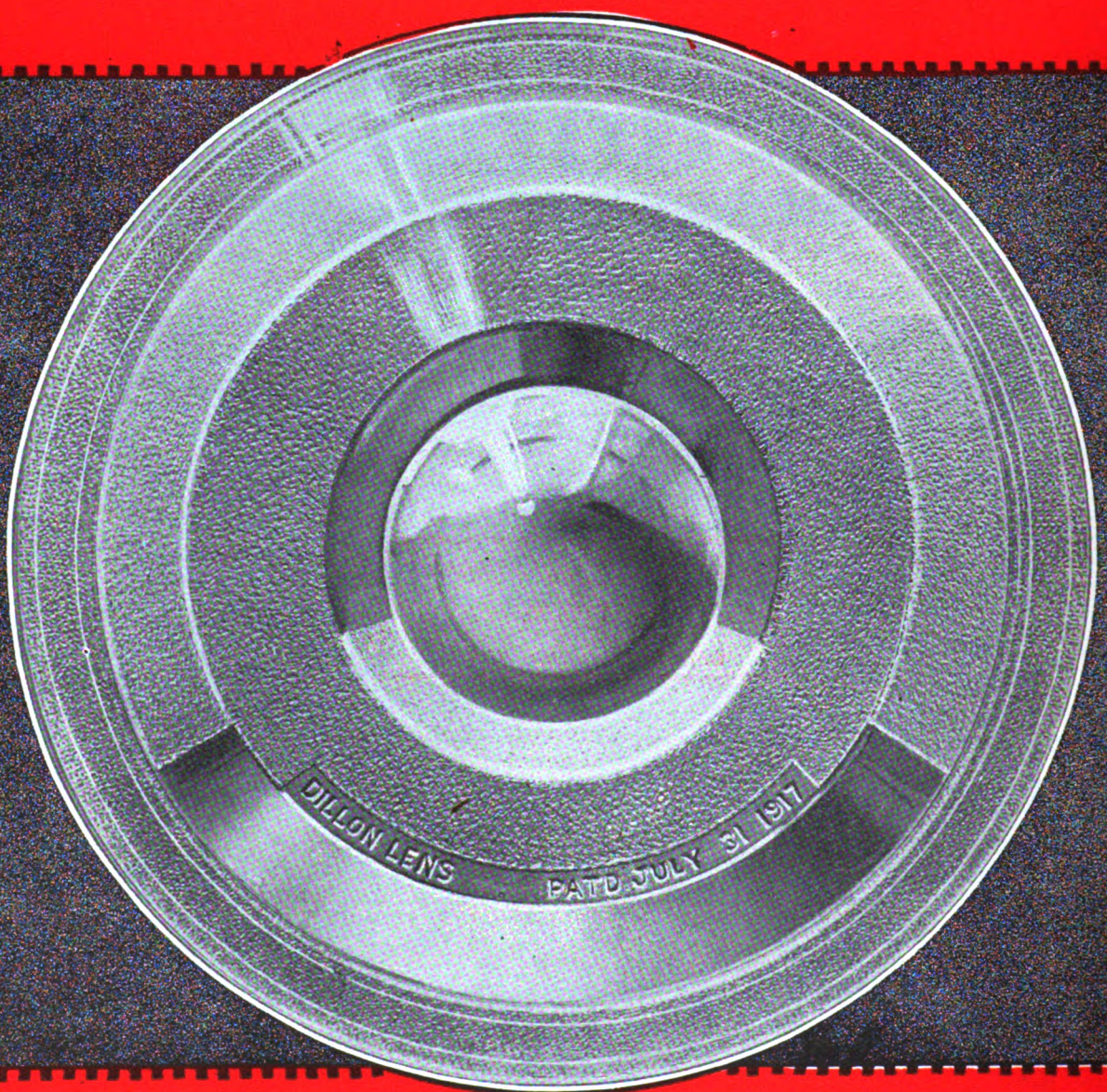
Patented Feb. 17, 1914. Other patents pending



When writing advertisers please mention Motor World—It identifies you

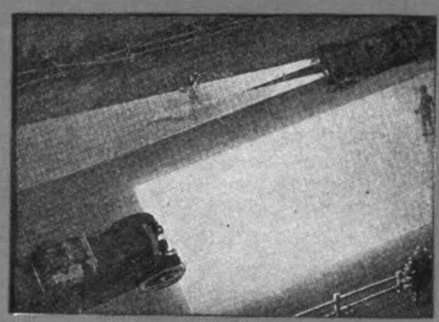
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The Lens that Science Built



DILLON

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The Ideal Lens Is Here at Last!

Not a lens in name only, but a lens in fact. Not a lens with only fantastic design to distinguish it. But an actual lens—the Dillon Multi-Vision Lens, distinguished by its **performance.**

The Dillon embodies new scientific principles of illumination, as applied to lenses.

Unlike other lenses which cut out glare and cut down light, the Dillon actually **adds** to your field of vision. Instead of a narrow, wedge-shaped shaft of light, the Dillon Multi-Vision Lens projects a SQUARE PATH OF LIGHT, safe, certain, **scientific!**

The Dillon is legal everywhere, because of its absolute freedom from glare. And because of the square-path of light, you get twice the lighted area —road-illumination for over 500 feet ahead and over 25 feet on either side.

All sizes are sold at the same low price—$3.50.

DEALERS—See your jobber today. The Dillon Multi-Vision Lens offers an unusual profit-making opportunity. If your jobber doesn't carry Dillon Lenses, write

NATIONAL DISTRIBUTING BUREAU, Inc.

EXCLUSIVE DISTRIBUTORS N B FOR DILLON LENSES

241 OLIVER BUILDING, PITTSBURGH, PA.

MULTI VISION LENS

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AMBU is an instrument which automatically detects and locates accurately and quickly trouble in any American made starting and lighting system standard on any American made car.



Good Electrical Repair Men Are Hard To Get

NOW IS THE TIME TO BUY

AMBU Service Consists Of:

AMBU INSTRUMENT, and the following sets of master equipment charts, with their wiring diagrams, instruction and battery books:

1. **Autolite**
2. **Delco**
3. **Gray & Davis**
4. **Remy**
5. **Westinghouse**
6. **Splitdorf and Apico**
7. **Bosch and Rushmore**
8. **Bijur, Dyneto and Ents**
9. **North East and U. S. L.**
10. **Wagner, Detroit, Ward Leonard**
11. **Leece-Neville, Robbins & Myers, Simms-Huff**
12. **Electro, Jesco, National**
13. **Adlake, Deaco, Esterline**
14. **Allis-Chal. Disco, Heinze**

Consultation service for one year from the delivery of AMBU. All additional wiring diagrams put out by us for one year from date.

The AMBU Trouble Shooting System consists of three parts, each of which is essential, and without any one of which the System would lose much of its value. These parts are:

1. AMBU — A Combined ammeter and voltmeter which has special patented features not possessed by any other instrument that has ever been made.

2. MASTER CHARTS—Books of instructions for the location of troubles which may arise in the electrical starting and lighting systems of gasoline automobiles.

3. 500 WIRING DIAGRAMS covering the complete wiring on the car. The complete AMBU service contains information impossible for you to obtain in any other way—viz., **showing internal hidden wiring connections rarely shown by the makers themselves**—classified, systematized, readily accessible, and filed in a handsome, substantial metal case with lock—a compact authoritative service.

TRADE AMBU MARK

Machines must do the work that men used to do

Never has there been such a scarcity of men—yet repair work comes piling in and you must turn down job after job — many of them to your competitor. If that's the situation that stares you in the face you can instantly change it by buying AMBU.

And with AMBU you can take care of all the electrical repairs on starting and lighting systems that come to you.

Better still, you can go out after more.

You can assure the car owner of prompt service and guaranteed repairs.

Why? Because with AMBU you become an electrical expert.

You have all the available information regarding every system and every car at your finger tips.

You have a wiring diagram of every system of every one of 500 makes of cars.

You have information telling you just how to correct every trouble on every one of those systems or every one of those cars.

AMBU — the Electrical Wizard—locates the trouble. Accurately — automatically — quickly—when AMBU tells you what it is there is no further question.

You go right to the seat of the trouble—You don't tear the whole system apart guessing what or where the trouble is. You cannot afford—you might say you don't dare—to be without AMBU.

Car owners the country over are learning to seek out the AMBU shop for electric repairs.

Those shops are looked upon as standard—up to date and reliable.

Thousands are using AMBU. Taking business away from the guessers — getting and holding satisfied customers.

Don't be one of the guessers. **AMBUISE YOUR SHOP.**

If our representative has not yet called upon you write us and if he is near we will have him call.

At any rate let us send you convincing evidence of what AMBU is doing for thousands of other men in your business. They are making money.

So should you.

Write for the story—How I made a Success of a One Man Shop (with AMBU) — and other AMBU literature.

Then you will quickly determine to make yours an AMBU Garage.

ADDRESS

Good Reasons Why YOU Need AMBU

ELIMINATE WASTE

Increases business.

More profit on electrical work.

Increased efficiency—can work on all systems.

Recommended by

On three jobs a week at $2.00 per job it will return $312.00 per year or over 300% on the investment.

Saves time.

Does your thinking for you.

Eliminates guess work.

Fills the place of the drafted man.

It gives in a condensed form the best expert brains of the country and an insight into the starting and lighting business that nothing else can.

It's the only positive way to locate trouble on starting and lighting equipments.

Hard to get good electrical men.

It gives a reputation as a Master Automobile Electrician.

It will bring business to your shop thru the monthly AMBU test.

AMBU will make electrical repairs easy and profitable.

AMERICAN BUREAU OF ENGINEERING, Inc.

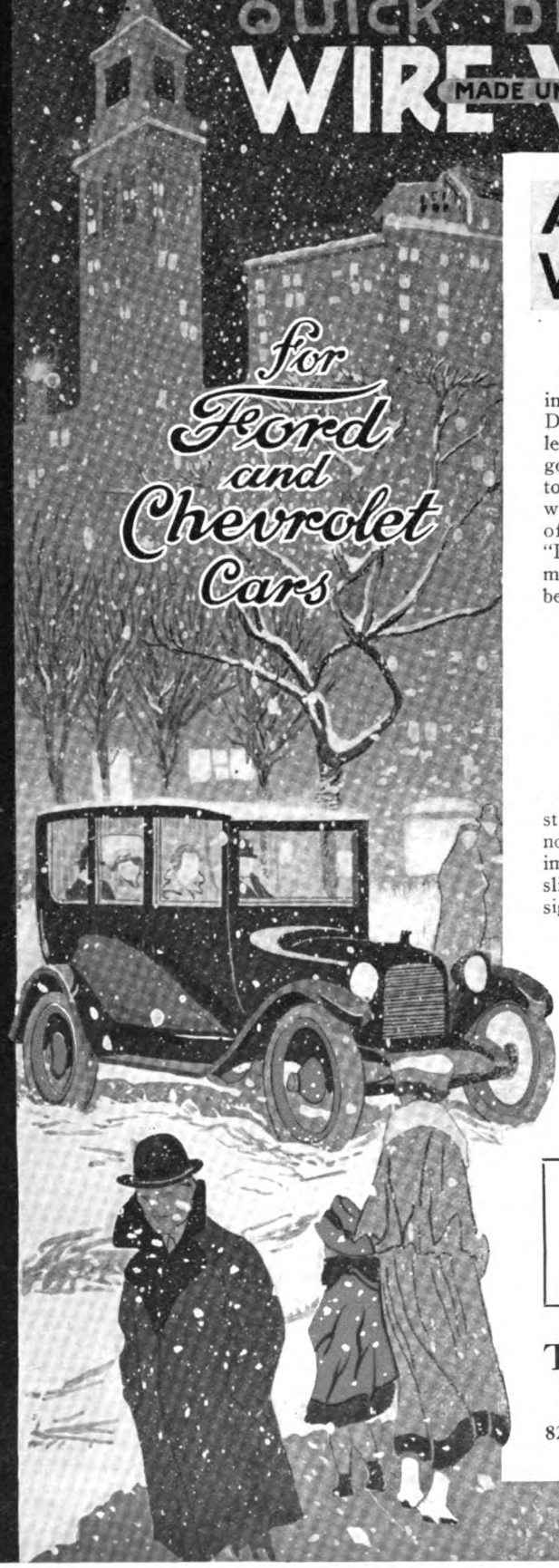
Automobile Department

1022 So. Wabash Avenue Chicago, Illinois

When writing advertisers please mention Motor World—It identifies you

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DAYTON
QUICK DETACHABLE WIRE WHEELS
MADE UNDER LICENSE

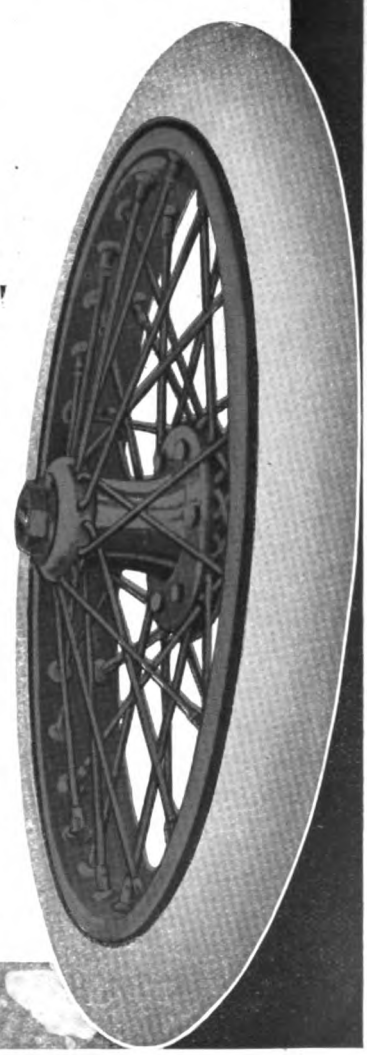


ARE YOU SECURING WINTER BUSINESS?

More Sedans and Coupelets will be sold this winter than in any previous year. What does this mean to you, Mr. Dealer? It means that any accessory which adds to the length of service, safety or attractiveness of these cars is going to be in big demand. Dayton Wire Wheels appeal to the conservative owner because of the wonderful resiliency which gives 25% more tire mileage and lengthens the life of the car proportionately. The quick change feature of "Daytons" represents a definite saving of time to the busy man, as well as a matter of comfort when a tire change becomes necessary in zero weather.

Strength and Safety

"Daytons" are five times as strong as wooden wheels and will not collapse under the most violent impact caused by skidding on slippery streets. The beautiful design of "Daytons" gives the last touch of elegance to the Sedan or Coupelet. Every closed car owner is a live prospect for Dayton Wire Wheels. There are wonderful sales opportunities in "Dayton" winter sales.



Deliveries Now!

Dayton Wire Wheels will be on exhibition at the Annex Hotel, Chicago, during the Chicago Automobile Show.

The Dayton Wire Wheel Company
826 Miami Road, Dayton, Ohio

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Just Off the Press

A revised and enlarged edition of our well-known **Library of Automobile Engineering** is just off the press. This up-to-the-minute work answers fully 10,000 questions on the repairing of all types of pleasure and commercial cars. No car owner, chauffeur, garage owner or repairman can afford to be without it. Sign and mail the coupon! It will bring you a complete set for seven days' examination and actual use. If the books fail to please, return them at our expense. If you decide to buy, pay the low introductory price at the rate of **50c a week.**

Mr. L. P. Coester, Philadelphia, Pa., writes: "When I first got your books I was earning $18.00 a week as a repairman. Now I am paid a salary of $30.00 weekly, and make considerable extra money in my spare time."

Mr. M. C. Armel, Royston, Ga., says: "Since reading your books my salary has been increased $40.00 a month. I am now a garage foreman with seven men under me."

Automobile Engineering—1918 Edition

The 1918 edition of the **Library of Automobile Engineering** is the newest and most complete work of its kind obtainable. Practically every type of pleasure and commercial car is described and illustrated, including 1918 models. Two entire volumes are devoted to the various ignition, starting and lighting systems, and hundreds of new wiring diagrams have been added. Welding, vulcanizing and public garage operation are thoroughly covered. Five thick volumes, 5¾ by 8¼ inches, flexibly bound in genuine morocco leather, gold stamped. 2,500 pages, 2,100 illustrations, wiring diagrams, etc., that make difficult points as simple as A-B-C. Written in plain, every-day language. Concise and to the point. Carefully cross-indexed for quick reference.

Sent for Seven Days' Trial—50c a Week

If You Buy!

Don't send a penny. Just put your name and address on the coupon and we'll send all five volumes to you. Pay only the small shipping charge when they arrive. Read them—study them—use them as if they were your own for an entire week. If you don't like them after 7 days—send them back at our expense. If you keep them, send only $2.00 within 7 days, and then $2.00 a month—**50c a week**—until the introductory price of $17.80 has been paid. The regular price of this set will be $25.00.

What the Books Cover

Explosion Motors, Welding, Motor Construction and Repair, Carbureters and Settings, Valves, Cooling, Lubrication, Fly-Wheels, Clutch, Transmission, Final Drive, Steering, Frames, Tires, Vulcanizing, Ignition, Starting and Lighting Systems, Wiring Diagrams, Shop Kinks, Public Garage Design, Equipment and Operation, Electrics, Storage Batteries, Care and Repair, Steam Cars, Motorcycles, Commercial Trucks, Glossary.

A Year's Consulting Service FREE

With each set we give you, absolutely free, a year's Consulting Membership. The regular price is $12.00, but you get it free with the set. Put your perplexing problems up to a staff of automobile experts. Ask them as many motor questions as you wish for a whole year free! A Chicago garage man writes: "This service alone is worth more than the cost of the books."

Mail the Coupon

Don't Send Us a Single Penny

Your name and address on the coupon brings the five books to you, shipping charges collect, for seven days' trial, returnable at our expense if they fail to please. This offer is open to every person within the boundaries of the United States and Canada. Act quick before rising paper costs compel an increase in price. Send coupon today—NOW.

AMERICAN TECHNICAL SOCIETY Dept. A1911B CHICAGO, U. S. A.

AMERICAN TECHNICAL SOCIETY,
Dept. A1911 B, Chicago, Ill.

Please send me the 5 volume Automobile Engineering (1918 Edition) for 7 days' examination, shipping charges collect. If I decide to buy, I will send $2.00 within 7 days and $2.00 a month thereafter until $17.80 has been paid. Then you will send me a receipt showing that the $25.00 set of books and the $12.00 Consulting Membership are mine and fully paid for. If I think that I can get along without the books after the seven days' trial I will return them at your expense.

Name .....

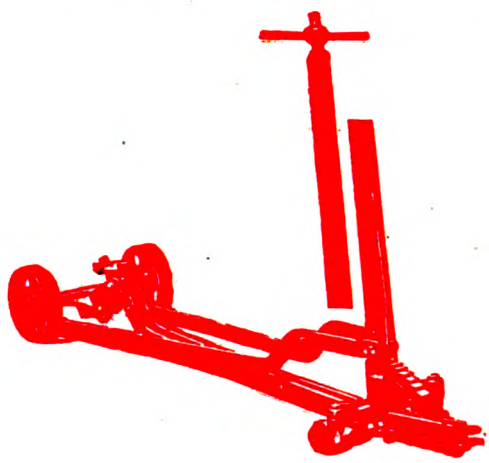
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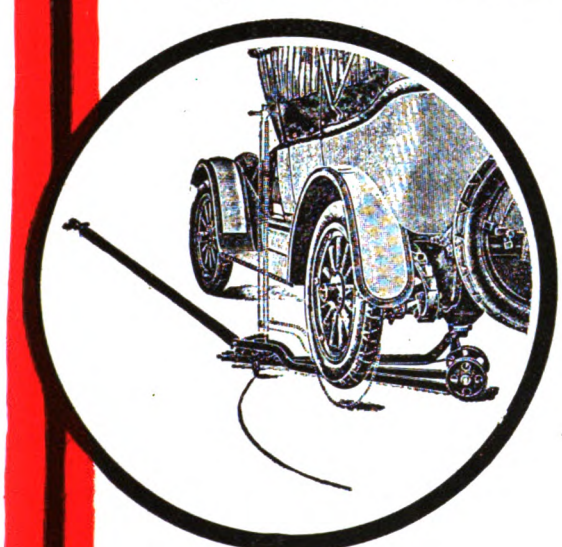
The Red Devil Dolly Jack

Simple
Reliable
Rapid



Invaluable on the Wash-Rack Unloading Cars and in Congested Places

Pays for Itself in the Time It Saves



In Operation Under the Running Board

In less than the time it takes to get the old-style jack set the RED DEVIL DOLLY has the wheels in the air.

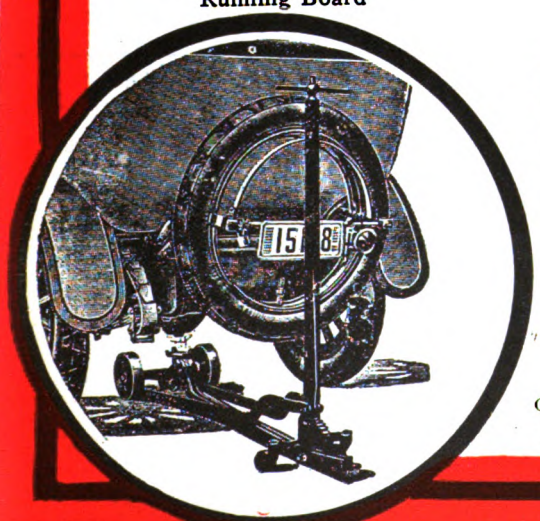
Does away with the necessity of crawling under cars. Sets firm and rigid on a base that cannot tilt and drop the car while you are raising or lowering it. Equipped with castors that roll under the axle where you want to work, while you stand up straight at the side, back or front and operate it with a convenient, long lever arm that makes it easy to lift the heaviest, worst balanced load.

The RED DEVIL DOLLY Jack—the fastest jack in the world—is already

In the Best Equipped Prosperous Garages

Castings are of crucible steel, the toughest material known. The large wheels, roller bearing, steel bars of mild steel. The RED DEVIL DOLLY JACK is fully guaranteed by the manufacturers.

Everything that saves your employees' time, makes money for you. The RED DEVIL DOLLY Jack saves hours every day. It PAYS FOR ITSELF IN A FEW DAYS, then continues to pay big dividends.



Write for free illustrated literature, price and complete details.

Mid-West Manufacturing Co.

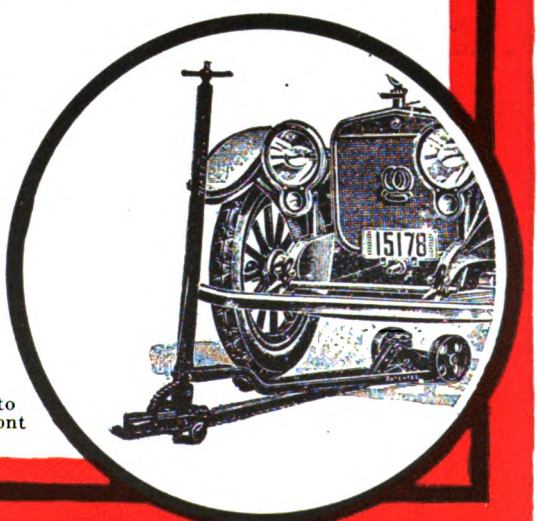
Factory and Branch Office,
Minneapolis, Minn.

Main Office,
Sioux Falls, S. D.

G. A. Ashton Company,
1547 University Ave.,
St. Paul, Minn.
Northwest Distributors.

R. S. Longstaff,
San Francisco, California
Coast Distributor.

Operates Under Any Height of Axle or Differential



In Position to Raise the Front of a Car

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Strangling the Periodicals

Congress at its last session passed a hasty postal law increasing the postage on periodicals from FIFTY TO NINE HUNDRED PER CENT.

Some periodicals will be killed—all will be restricted in circulation and crippled. There will be fewer readers, and the habit of reading curtailed. The great function of periodicals is to assist in the spread of ideas—by printing the achievements in the world of thought, culture, and science.

Thus to shut out farm journals—as these zone rates will—will lessen the productive power of our country by millions of dollars through loss of better methods. Shut off trade journals and you decrease the manufacturing power by more millions. Shut off the religious papers and there are shut off channels that have raised millions of dollars for distressed humanity. Shut off the great periodicals of the home and there is throttled an avenue that has given expert instruction to hundreds of thousands of mothers and saved their babies to health and citizenship.

These national periodicals are printed in the big cities—and the first zone, the cheapest zone, is in or near those cities; there are many educational opportunities near cities, and the cities will read anyway. Small towns and distant districts depend to a large extent upon periodicals; thus this law increasing periodical postage where it is most needed shuts off opportunity where needed. It penalizes periodical readers.

Repeal this law. Repeal this FIFTY TO NINE HUNDRED PER CENT periodical postage increase. Sign the petition below and mail it. Put a cross mark in the square—save the periodicals and the work that they have done and are doing for national education and patriotism.

SIGN BELOW.

CUT OUT. MAIL TO CHARLES JOHNSON POST, Room 1417, 200 FIFTH AVENUE, NEW YORK CITY

PETITION TO CONGRESS—Sign Here!

The spread of education, of culture, of scientific knowledge and advancement, and of our vast internal merchandising and manufacturing has been, and always is, vitally dependent upon the freest and cheapest circulation of periodicals. The penalties resulting from any restriction on the freest possible circulation of periodicals will be destructive of the best interests of our economic life and the opportunities of developing our best citizenship.

The postal amendment passed by the last Congress increasing the postage on periodicals from FIFTY TO NINE HUNDRED PER CENT will throttle or destroy our periodicals at a time when the widest and most extensive circulation of publications is essential to the patriotism, education, and upbuilding of our country.

Therefore, I the undersigned, do most earnestly demand the repeal of this burdensome periodical postage amendment.

Name.....

City or County.....

Street Address.....

State.....

Periodicals mean much in your life. If you will help by a few arguments with your acquaintances and an occasional letter in a spare moment, put a cross mark here.

Will you help in securing the repeal of this iniquitous law? ☐

CUT OUT. MAIL TO CHARLES JOHNSON POST, Room 1417, 200 FIFTH AVENUE, NEW YORK CITY

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Tie up your business to this nation-wide advertising

How you can make extra good profits on Conaphores in 1918

The 1918 Conaphore campaign in the leading magazines and farm papers is the strongest ever put behind an automobile headlight glass. The publications used by Conaphore have a total circulation of more than 7,000,000. A strong, educational message on the efficiency of Conaphores will reach more than 28,000,000 readers regularly.

Tie up to it!

Focus this nation-wide campaign on your own business. Direct the demand straight to your counters. Get your full share of Conaphore profits!

Trade aid

Put the Conaphore sales-helps behind your own sales efforts, and you will get the major portion of the headlight business in your territory. We supply the following items without charge:

Order getting consumers' booklet—Two color, envelope-size folder telling the complete Conaphore story. A great business getter when sent out with your mail or passed out over your counters. Ample space for your own signature.

Attractive window transparency—Two color poster, 14 inches wide. Marks your store as a Conaphore sales-depot. This design also available as a store or counter card—even a billboard poster.



The Conaphore

Smooth front surface. Easily cleaned. Does not clog with dust, mud or snow.

Manufactured by the World's Largest Makers of Technical Glass

CONAPHORE

No-Glare—Range 500 ft.—Pierces Fog and Dust

1918 wall chart—Combination sales-poster and chart of headlight sizes for different makes of cars. Has strong attention-getting value, and delivers a real sales-punch. Should be on every dealer's wall.

Set of newspaper electros—A series of six newspaper ads, suitable to run in your regular space. Furnished complete, with plenty of room for your own signature.

Consistent use of these trade helps will keep the fact that you sell Conaphores constantly before the motorists of your territory. It will help you cash-in on our national advertising.

Jobbers—Write us for the Conaphore proposition—it is sure to interest you.

Dealers—Write your jobber, or direct to us, for full particulars on the Conaphore.

If you attend the Chicago Show be sure to call on us at Booths 167-173, inclusive, Coliseum Annex. We will be glad to talk business in terms you will readily understand.

Retail Price List (Per Pair)	Noviol Glass	Clear Glass
5 to 6⅞ inches incl.	$2.40	$1.60
7 to 8½ inches incl.	3.50	2.50
8⅝ to 10 inches incl.	4.50	3.00
10⅛ to 11½ inches incl.	6.00	4.00

Prices 25 cents more per pair west of Rocky Mountains. Sizes vary by steps of ⅛-inch above 6½-inch size.

CONAPHORE SALES DIVISION
Edward A. Cassidy Co., Inc., Managers
Madison Ave. and 40th St., N. Y. C.
CORNING GLASS WORKS

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DEALERS

1918 should be a big year in the replacement business. Thousands of cars, which under normal conditions would be traded in for new models, will be kept in use. These cars will need new parts and accessories, particularly brake lining.

RUSCO
BRAKE LINING

has proved its dependability and durability for several years on the brake bands of over a million cars. Until now our output has been completely exhausted by car manufacturers. We have recently acquired additional factories which enable us for the first time to offer Rusco to the trade.

We are, therefore, ready to make profitable arrangements with dealers who are building their business on the firm foundation of satisfaction to their customers.

Our plan will enable you to sell supplies and increase your 1918 business. Write for it and learn what a profit earner it is.

Three quarters of a century's experience in weaving heavy textile products and the combined facilities of our thirty-seven factories stand squarely back of every Rusco dealer.

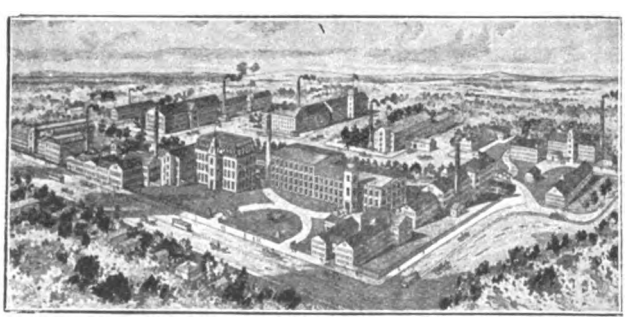
Why not join hands with us and make 1918 your biggest year yet?

THE RUSSELL MANUFACTURING CO.
MIDDLETOWN, CONN.

349 Broadway
New York City

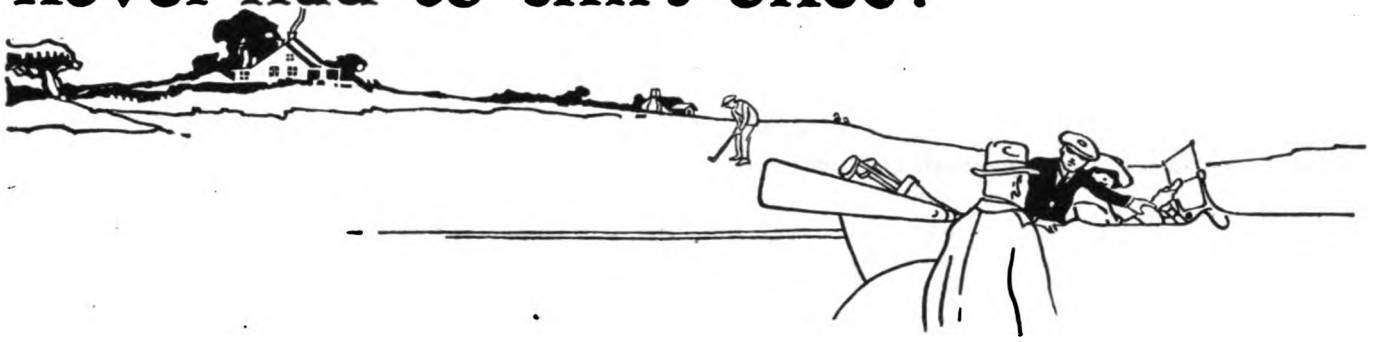
18 Alexandirine Ave., E.
Detroit, Mich.

Chicago



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"coming home they sold her some poor gas, but with that switch on 'H' she never had to shift once."



FOR when she threw the switch to "H" the motor, which has been missing badly, immediately responded to the flood of sparks turned loose by the Philbrin High Frequency System.

That High Frequency System delivers a thousand sparks a second to each cylinder in its regular firing order. There's no mixture, even though poor, that won't give way before that stream of fire.

But the High Frequency is a secondary system to the Philbrin Single Spark System. Most of your running is done on the latter system with its hot, uniform spark, hottest at low speeds.

This system will fire a lean mixture perfectly and give your engine the power, speed and "pep" that every motorist considers his heritage.

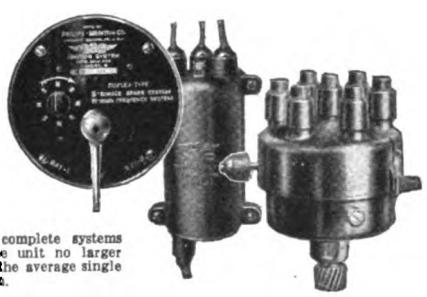
The efficiency of Philbrin Single Spark Ignition is due in no small part to the Philbrin Contact Maker and Condenser, which provide for ample saturation of the coil and an instantaneous break, assuring a full-bodied, powerful spark with extremely small current consumption.

Philbrin Duplex Ignition, by combining two distinct systems under one control, accomplishes results that could not be expected of any single system alone. And each system, separately, has been developed to the highest point of dependability and efficiency.

Made in sizes for all cars, with special mountings for magneto replacement when required. Our trade policy assures Jobber and Dealer an attractive margin of profit. Territories now being assigned. Write at once.

See Our Exhibit at the Chicago Automobile Show, Booth 87.

PHILIPS-BRINTON CO. 503 S. Broad St. Kennett Square, Pa.



Two complete systems in one unit no larger than the average single system.

PHILBRIN
DUPLEX IGNITION
—with a second system to spur the motor to super-service.

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Bergougnan Tires

In France where they have been manufactured for the past twenty years, these tires stand absolutely unsurpassed. Once they become known here they will enjoy a similar reputation. We could employ a lot of adjectives. We would rather pin our faith on performance.

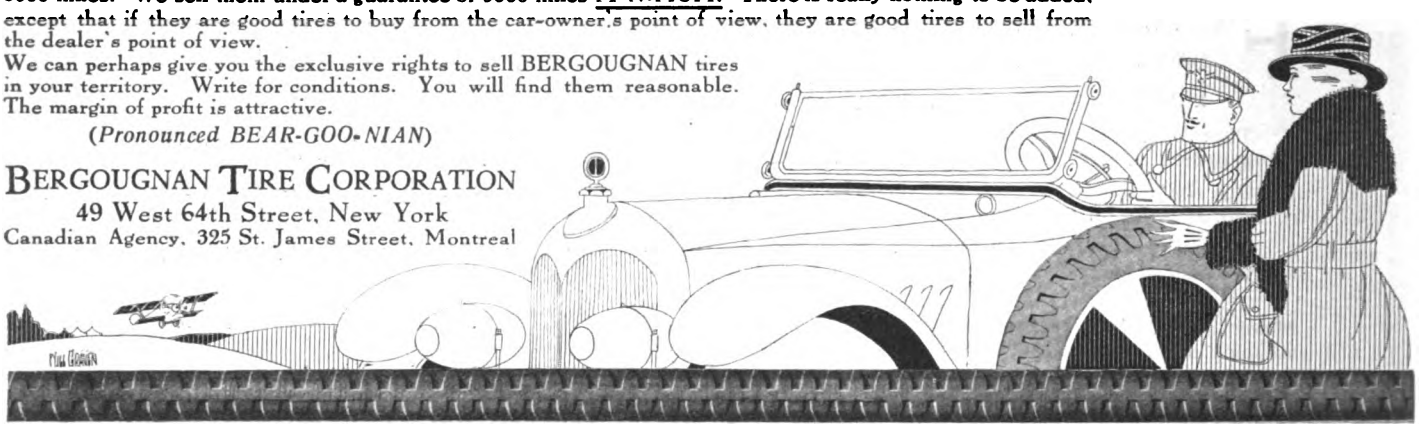
Exaggerated claims and statements more sensational than truthful are essential in advertising products that have no real merit—articles for which a fictitious demand must be created. But the advertiser of tried products of established value need not stoop to such methods.

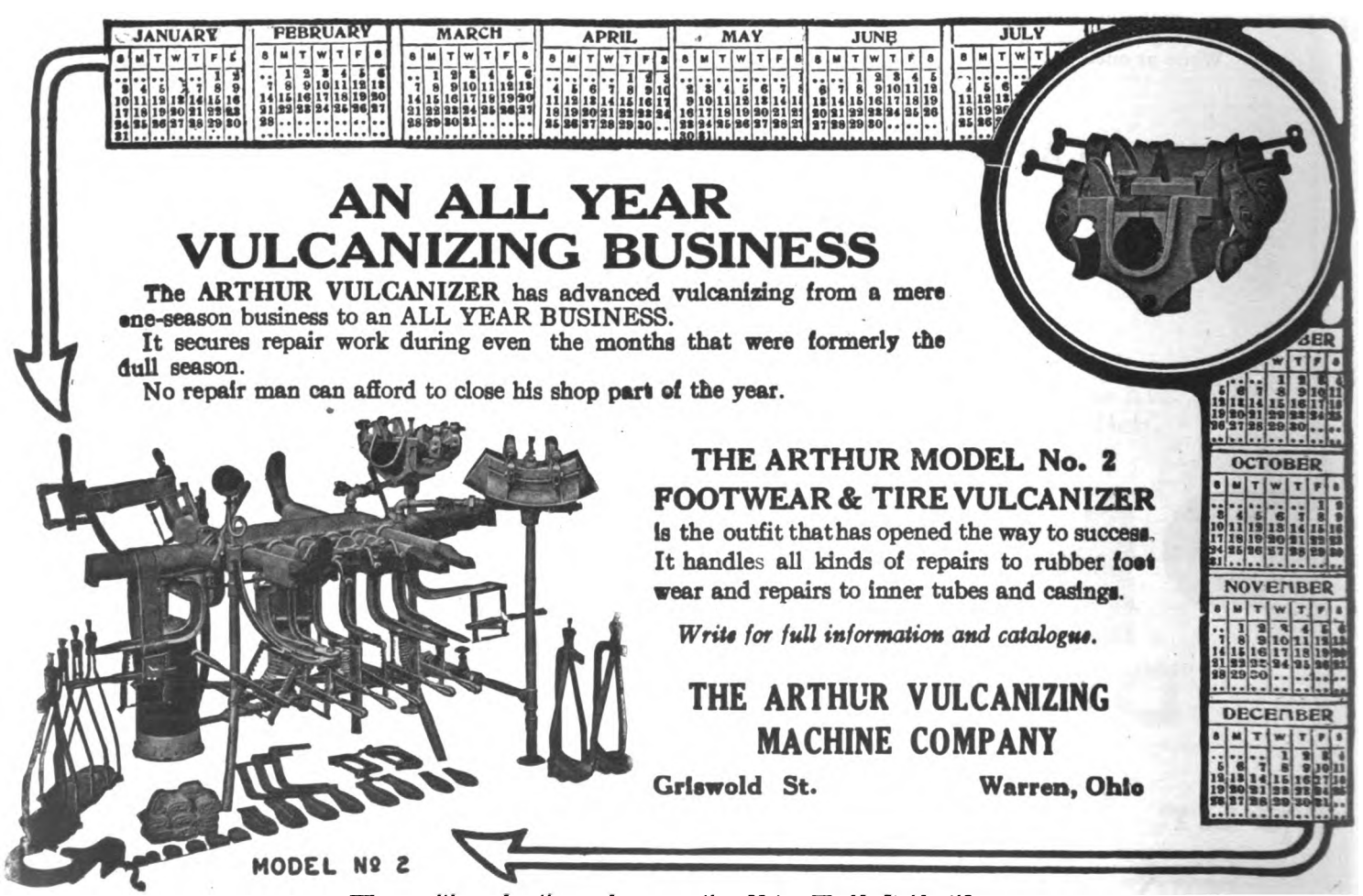
We tell you that BERGOUGNAN tires (formerly sold under the name of GAULOIS tires) frequently render 8000 miles. We sell them under a guarantee of 5000 miles MINIMUM. There is really nothing to be added, except that if they are good tires to buy from the car-owner's point of view, they are good tires to sell from the dealer's point of view.

We can perhaps give you the exclusive rights to sell BERGOUGNAN tires in your territory. Write for conditions. You will find them reasonable. The margin of profit is attractive.

(Pronounced BEAR-GOO-NIAN)

BERGOUGNAN TIRE CORPORATION
49 West 64th Street, New York
Canadian Agency, 325 St. James Street, Montreal





AN ALL YEAR VULCANIZING BUSINESS

The ARTHUR VULCANIZER has advanced vulcanizing from a mere one-season business to an ALL YEAR BUSINESS.

It secures repair work during even the months that were formerly the dull season.

No repair man can afford to close his shop part of the year.

THE ARTHUR MODEL No. 2 FOOTWEAR & TIRE VULCANIZER

is the outfit that has opened the way to success. It handles all kinds of repairs to rubber foot wear and repairs to inner tubes and casings.

Write for full information and catalogue.

THE ARTHUR VULCANIZING MACHINE COMPANY

Griswold St. Warren, Ohio

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7/8 in.
Regular
for
Maxwells
AC
Titan

Maxwell Owners

Does your motor always hit on four?

Do not blame your carburetor, or your ignition system, or your valves if your motor does not perform as it did at first, *but look to your spark plugs.*

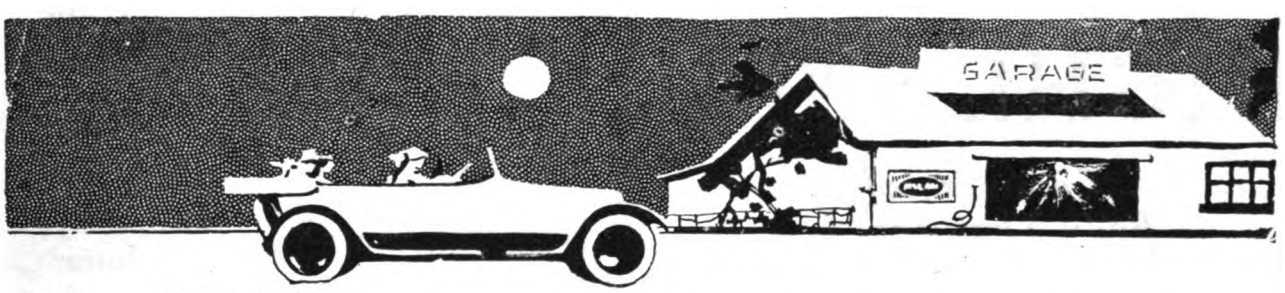
A set of *AC Titan* plugs will make your car run more smoothly than it ever did because it delivers the *entire* spark instead of losing most of it through the insulation.

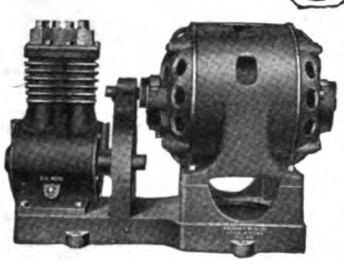
AC SPARK PLUGS

The Standard Spark Plug of America

Champion Ignition Company

Sole Manufacturers Flint, Michigan





The motorist who drives his car during the winter months knows that the severe jolts and jars his tires are subjected to on the frozen ruts and ridges of the roads during the winter necessitate even more careful tire inflation than during the summer months, and he favors Brunner Air Service because he knows it is a dependable and efficient service.

Investigate the* BRUNNER *Air Compressor

If you do not find the Brunner Line in your jobber's catalogue we will be glad to send you the name of the Brunner Jobber covering your territory. We will also be glad to send you our new No. 15 catalog.



BRUNNER MANUFACTURING COMPANY

Main Office and Plant
UTICA, NEW YORK

Cincinnati Branch
CINCINNATI, OHIO



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REG. U.S. PAT. OFF.
GTD

Look for the GTD trade mark when you want the best Taps and Dies

Every garage and repair shop should be equipped with "LITTLE GIANT" Combination Screw Plates. Furnished both in U.S. and S.A.E. Standards.

Each die is contained in its own collet and adjusted to size. There is also a Bit Brace Die Holder for cleaning up battered threads in out-of-the-way places.



If you are a manufacturer, garage or repairman—or a car owner who makes his own repairs—you can be supplied from our big established line.

Write today for the No. 37 Catalog

Greenfield Tap & Die Corporation
Greenfield Mass.
New York, 28 Warren St.
Chicago, 13 S. Clinton St.
Canadian Factory: Wells Brothers Co. of Canada, Ltd., Galt, Ontario.

HIGHLAND

A Commercial Body That You Can Depend On

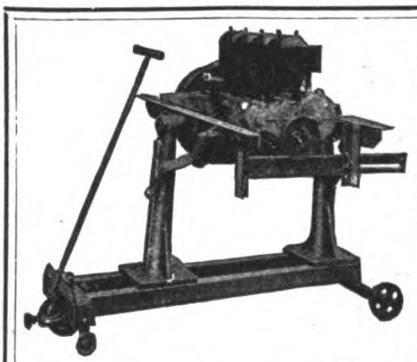
We operate what we believe is the most complete commercial-body plant in the country.

We have had over twenty-five years' experience in building commercial bodies for every requirement.

Most of the leading truck-builders are glad to avail themselves of our cooperation in designing bodies that are right.

Why not take advantage of it for your needs?

The Highland Body Manufacturing Company
121 Elmwood Place Cincinnati, Ohio



The Only Engine Stand THAT PROPERLY MOUNTS Every Type of Motor Suspension

And supports it in *any* position, so that the workman may reach all parts with ease and safety.

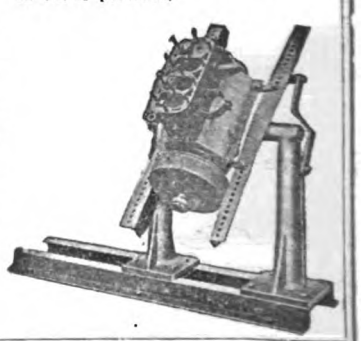
The MANLEY "EVERY WAY" ENGINE STAND

It can be anchored securely to the floor, or moved about the shop easily on roller-bearing casters, as occasion demands.

It can be adjusted to every position in a circle making it equally easy to work on valve mechanism, clean out carbon, grind valves, take up crankshaft, connecting rod, bearings, etc. In each position engine is rigidly locked by two side braces, leaving workman absolutely free and unobstructed. It supports the engine solidly, never gets shaky, and should last a lifetime without repairs.

Prices (with complete equipment), Stationary, $43; Portable, $53.

For 4-point suspension, the brackets are bolted directly to cross arms, having 100 holes. For 3-point, adjustable cross bar shown in cut is provided.



The United Engine & Mfg. Co.
Hanover, Pa.

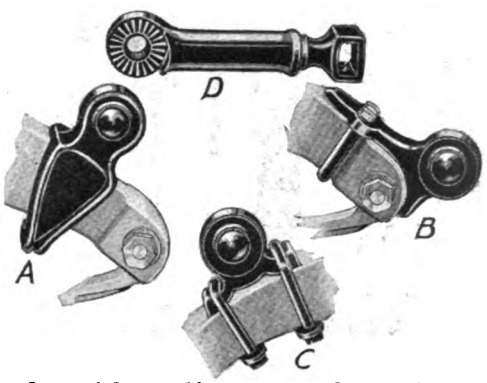
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HALLADAY BUMPERS

STANDARDIZED and SIMPLIFIED

The necessity of heavy investments by the dealer eliminated by the

Halladay Standardized Unit



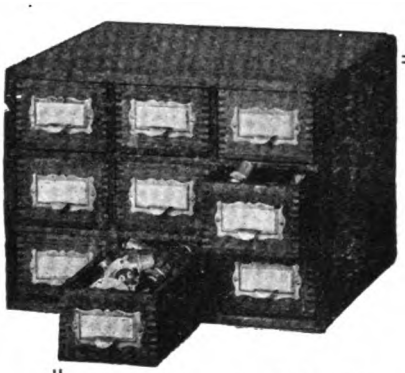
By means of these four parts and a supply of bars, the dealer is enabled to assemble a bumper to fit perfectly 90% of all cars with forward frame extensions and the rear of most cars with either three-quarter elliptic springs or extended frames.

Bear in mind, these assemblies are not "make-shifts," they are as perfectly adapted to the car as are the special bumpers built for the same cars, with the advantage of a wider adjustment for height, etc. With these fittings, all Halladay bars may be used, including the new "MULTIPLE SPRING BAR."

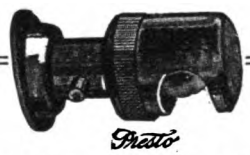
Write for Catalog of Our Complete Line of Bumpers and Accessories

L. P. HALLADAY COMPANY **Streator, Illinois**

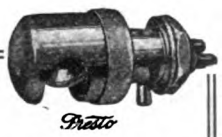
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PRESTO Connector Cabinet Furnished Dealers, Garagemen and Supply Houses, with connectors or without.



No. 647-S — Bull Pup Dash Lamp, one of 18 styles of Dash Lamps.



No. 655-S—Metal Dash Lamp (4 styles for wood and metal dash).

While In Chicago For The Show See The Blue Ribbon Exhibit *of the Entire Presto Line*

A few months ago, at an accessory show held in the Coliseum, Chicago, the PRESTO exhibit was awarded the blue ribbon for display.

This same exhibit is waiting for your inspection at the CONGRESS HOTEL—PARLOR FLOOR from January 26 to February 2—while you are at the Chicago Show.

DON'T FAIL TO SEE IT

METAL SPECIALTIES MFG. CO., Inc.

338-352 N. Kedzie Ave. Chicago

EASTERN BRANCH: 16-24 W. 61st St., New York City.

WESTERN BRANCH: 149 New Montgomery St., San Francisco, Cal.



No. 3-P—Dash Board Y Plug Socket.



Patented

No. 2100—PRESTO Electric Heater for Auto Engines, Carburetors and Radiators. $4 in U. S. A. $6 in Canada.



No. 8—Elbow Plug for Ford Headlights.



No. 135—Double End Focusing Socket for Ford headlights.



All weather protector for Ford cars. Keeps out the cold winds.

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Haywood's



Nationally Advertised

Tire Repair and Vulcanizing Service

In these days of high tire prices, the tire repair business is getting bigger and better than ever, as motorists learn the method of true tire economy. Why not cash in on this opportunity? Put in a Haywood Tire Repair Plant. Link up with a nationally advertised tire repair service. Six years of Haywood's advertising has standardized the Haywood method.

The Sign of the Man and Machine

—is the connecting link between the tire repair man and the automobile owner. It chains the established trade of hundreds of customers to your business. It connects your shop with a national tire repair service—a standardized service—a service that motorists know absolutely to be economical, practical and efficient.

The Haywood System

—is scientific—a true system of conservation of tires—a system that saves motorists thousands of dollar on tire bills. It means repairs that are lasting—vulcanizing that holds—repairs that are solid as the original tire itself, insurance to motorists of no regrets on the road.

Haywood's Tire Repairing and Vulcanizing Plants

The Haywood Plants are complete, all in one unit—are easily operated—no experience necessary. Here is your opportunity to make big money—to add hundreds of dollars in profits a year to your business. Occupies only a small part of your shop—can stand right out in the open where your customers can see it—a constant reminder to keep their tires repaired. Your shop equipped with a Haywood Plant is the motorist's logical haven for tire repairing. It completes your service—a service that customers like—a service that brings and holds business at big net profits.

Write for New Catalog

Use a letter or post card or simply send the coupon below. This brings the big book of facts—tells all about tires and how to repair them—shows outfits in use—gives proof of successes—shows how we co-operate with plenty of advertising and plenty of help—how you link up with a national service. Book gives complete details. Write today. Don't delay.

The Haywood Tire & Equipment Co.
1042 N. Capitol Ave., Indianapolis, Ind.

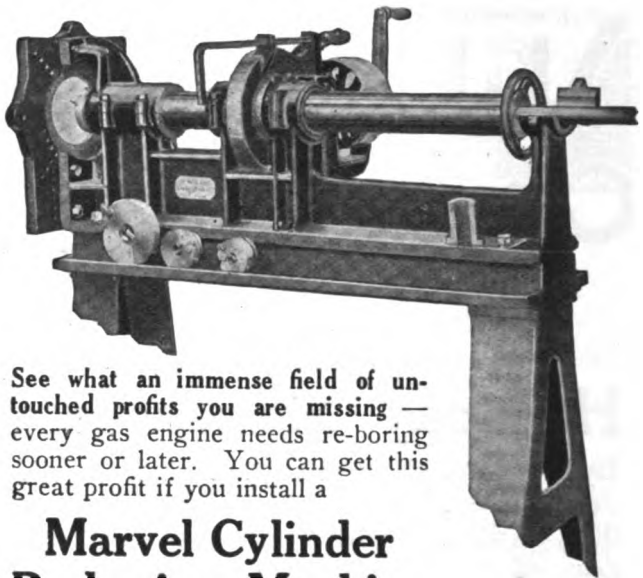
Haywood Tire & Equipment Co.,
1042 N. Capitol Ave., Indianapolis, Ind.

Gentlemen: Please send me full particulars of your national service of tire repairing and complete catalog and information of Haywood Tire Repair Plans.

Name .....

Address .....

.....



See what an immense field of untouched profits you are missing — every gas engine needs re-boring sooner or later. You can get this great profit if you install a

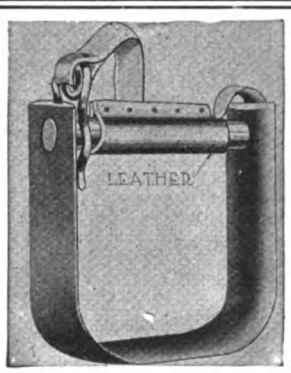
Marvel Cylinder Re-boring Machine

The only device that will do the work and bring you the profit—no other like it for *speed, accuracy, simplicity of operation* and *general efficiency.*

Will re-bore any block, 2½" to 8" in diameter, perfectly round and without taper, accurate to less than .001 of an inch.

Write for particulars and about the accurate fitting pistons we supply.

MARVEL MACHINERY CO.
1305 S. Third St., Minneapolis, Minn.



Every Truck With Solid Tires Needs EASYON Truck Grips

They take a firm hold on any road but cause no bumping on pavements.

WOODWORTH

EASY-ON SOLID TIRE GRIP

The Easyon Solid Tire Grip is made from half oval steel U-shaped to fit over the tire and rim. The rounded side comes next to the rubber presenting a perfectly smooth surface that does not cut or injure it.

It is held in place by a round leather covered bar that connects the end across the felly of the wheel between the spokes. On pavements the bar raises up from the felly but in mud or snow it comes against a spoke tilting the grip so that one edge digs into the soft road taking a strong hold.

Will save double their cost in tires besides causing no bumping to machinery.

Made in all sizes for single or dual tires.

Dealers and Jobbers should write for proposition.

Woodworth Mfg. Corporation
Niagara Falls, N. Y.

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District Representatives

The manufacturer of a well-known automobile accessory will have several desirable District Agencies available very soon. Established business with jobbers and garages awaits a few high-grade men with moderate capital and the ability to create and maintain aggressive selling organizations. Possible curtailment in automobile production means greater demand than ever. Our National advertising and liberal dealer helps will get this business for you.

Address Box 12, Accessory Manufacturer, care of Motor World, Mallers Building, Chicago, Ill., for particulars.

Increase your shop earnings with the

W. B. LATHE ATTACHMENT
FOR UNIVERSAL GRINDING

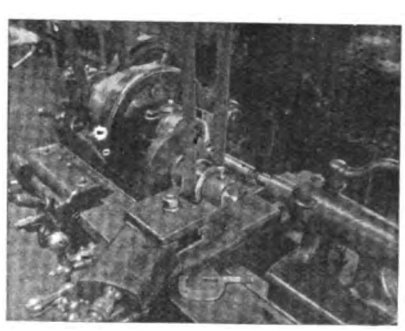
Quickly attached to the compound rest of a lathe and driven by an overhead drum, it makes possible the grinding with accuracy and speed of hardened mechanical parts.

The W. B. Grinder is superior to the direct connected electric type because—it is smaller in bulk with greater power, has large adjustable bearings and is entirely free from electrical trouble.

With this equipment all kinds of cylindrical and internal grinding can be done—such as wrist pins, pistons, knuckle bolts, thrust bearings, ball bearing cups, cones, piston rings, hardened transmission shafts, milling cutters, reamers, etc. With internal grinding spindle, it will grind holes in gears, ring gauges or other parts.



Cylinder Grinder



Price $60.00 F.O.B. San Jose.

SPECIFICATIONS

Spindle—Hardened and ground, tool steel taper bearings, 1¾" diameter.
Bearings—Phosphor bronze adjustable bearings.
Pulley—2½" x 1¼" flanged, takes 1¼" belt.
Collets—Interchangeable wheel collets.
Countershaft—Tight and loose pulleys, 2" x 4"—drum 7" x 36".

ARTHUR T. BRITTON, 590 South 1st Street SAN JOSE, CAL.

Manufacturer of the W. B. Line

LEATHER HLB

The mark HLB on the leather goods you handle means much to both yourself and your customer. It means that an old reliable company stands back of every piece of leather bearing that mark of quality and distinction. The Hide Leather & Belting Company is the *only* one which stamps it's trademark on *every* piece of goods it sells. Such a method of merchandising guarantees you against inferior goods, fraud, or unfair prices. You're absolutely safe in recommending HLB leather to *any* customer.



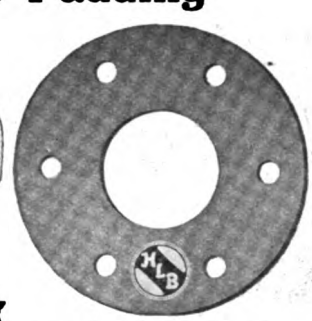
HLB Wetprufe

Flat Fan Belting

Every auto supply dealer has daily demand for a high quality flat fan belting. WETPRUFE is a flat belting that has given satisfaction for years—many motor car makers use it, and praise it enthusiastically. WETPRUFE, made of specially tanned oak leather, is heat, oil, and water proof. In 50 ft. rolls, from ½" to 1½" widths. You can recommend WETPRUFE to any customer.

Frame Padding





ANTI-SQUEAK

HLB Anti-Squeak Frame Padding retains its anti-squeak qualities indefinitely. Better than solid woven padding—and costs less. Furnished in Bonnet Lacing, Shims, Spring Pads, Radiator Pads and all forms—any width, any thickness. Is heatproof, moisture proof and oil-resisting.

Universal Joint Driving Discs

Made from firm, hard oak-tanned leather. Uniform in thickness and texture. Standard sizes carried in stock at all times. When writing mention sizes desired.

Write Today—Jobbers and dealers who want to handle the BEST line of leather belts and parts should send at once for complete information on our entire HLB line. Inquiries answered promptly. Jobbers desiring to install the HLB line should write at once for catalog cuts and particulars about our belting display rack.

HIDE, LEATHER & BELTING CO.

219 S. Meridian St., Indianapolis, U. S. A.

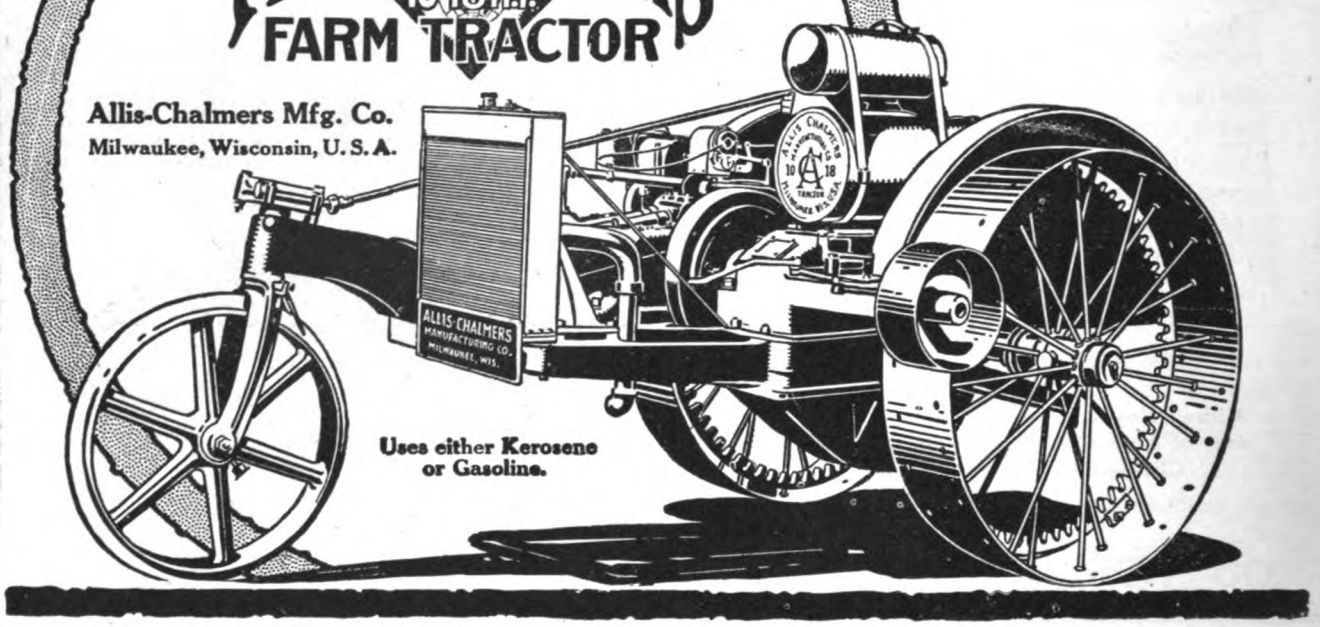
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Its three years of successful work in the field at home and abroad have proven this Tractor's durability, economy and efficiency.

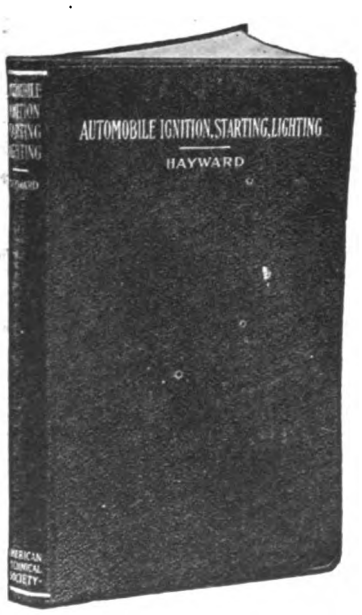
ASK your banker about the financial strength and business standing of Allis-Chalmers.

ALLIS-CHALMERS 10-18 H.P. FARM TRACTOR

Allis-Chalmers Mfg. Co.
Milwaukee, Wisconsin, U. S. A.



Uses either Kerosene or Gasoline.



761 *pages, 481 illustrations*
Flexible leather, gold stamped
$2.50 *Postpaid*

Automobile Ignition, Starting and Lighting

WITH QUESTIONS AND ANSWERS

By CHARLES B. HAYWARD

A comprehensive analysis of the complete electrical equipment of the modern automobile, including many wiring diagrams and details of all the important starting-lighting systems.

Some of the Principal Subjects Treated

Elementary Electrical Principles. The Electric Circuit, Magnetism, Induction Principles in Generators and Motors.

Ignition. Fundamental Ignition Principles, Sources of Current, Ignition Systems (Dual, Duplex, Double Spark, Ford Magnets), Spark Timing, Modern Battery Ignition Systems, Testing, Adjustment and Maintenance; Summary of Ignition Instructions (Questions and Answers).

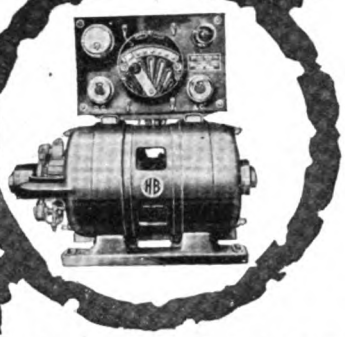
Electric Starting and Lighting Systems. General Features, Lighting Equipment, Practical Analysis of Types with Wiring Diagrams, including Auto-Lite, Bijur, Delco, Gray and Davis, Remy, U. S. L. Wagner, etc.; Summary of Instruction on Electric Starting and Lighting (Questions and Answers).

It is the most illuminating and instructive work of its kind ever published. Indispensable to the novice and the expert.
Pocket size, 5½ by 8¾—761 pages—481 wiring diagrams and illustrations. Flexible leather, gold stamped.

U. P. C. BOOK COMPANY, Inc.

Successor to **Class Journal Co., Book Dept.** **241-249 West 39th Street, New York**

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With this HB 500 Watt Equipment

You Can Make Big Profits

in Recharging Auto Storage Batteries

Big money-maker all the year round, but cold weather, heavy starter service and excessive use of lights, make battery charging profits run highest when other business runs low. Other garages are clearing $30 to $60 a month extra profit—and so can you. Recharges 1 to 7 batteries at a time. Current cost 12c to 15c per battery. Autoist pays 75c to $1.50. Profit of 60c to $1.35 on every battery. Quick charging. Big profits.

$15 Puts This Money-Maker in Your Garage

Balance in 8 monthly payments of $20 each. Earnings should easily pay—and make good profits besides. Tear out and mail this ad for further particulars or send $15 with this ad and get charger for special ten days' trial. Absolute money-back guarantee. We take all the risk. Start making profits *NOW.*

Hobart Brothers Company

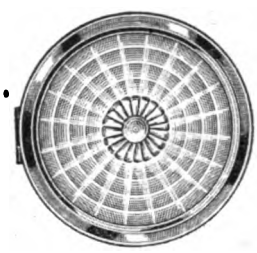
Box W15 Troy, Ohio



MORE LITE AUTO LENS

Every More-Lite sale means a pleased and satisfied customer and every pleased customer helps general business. Scientific tests forecasted the success of More-Lite Lens. The performance test, which is the only test that really counts, is proving science correct in this instance, at least.

Increased production will enable us to supply additional dealers this year. Write.



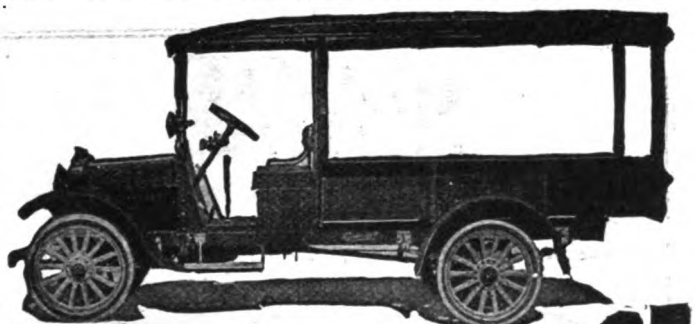
LIST PRICES

Inches	Crystal per pair	Amber Glass per pair
6 to 8½ dia.....	$1.50	$2.00
8⅝ to 9½ dia...	1.75	2.25
9⅝ to 10¼ dia..	2.00	2.50
10½ to 11¼ dia.	2.25	3.00

Manufactured by

L. E. SMITH GLASS CO.

MT. PLEASANT, PA.



Commerce

1 Ton Trucks

A Year Ahead *of* Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Remy Starting and Lighting—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

Commerce Truck Motor, Detachable Head—Torbensen Rear Axle—Detroit Steel Products Company Springs.

One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company

DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.



Insufficiently inflated tires mean excessively inflated tire bills. Keeping your air pressure up means keeping your tire expense down.

Test your air pressure daily with a

Twitchell Air Gauge

and give your tires new air whenever they need it.

New Air Is Cheaper Than New Tires

At your dealer, or

The Twitchell Gauge Co.

1220 Michigan Avenue, Chicago

Price $1.25

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COLLIER TRUCKS

Includes Body and Electric Starting and Lighting $885

Built of All Truck Units The Biggest ¾-ton Truck Value Obtainable.

THE COLLIER MOTOR TRUCK CO., BELLEVUE OHIO

Quality in Motor Trucks

It has been our endeavor to create a commercial vehicle that would excel first of all in the quality of the material used, and, second, in the economy of its operation.

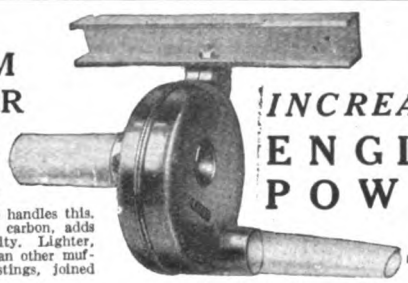
Our reputation for producing the most lasting truck is recognized by our many users.

We offer for your convenience the following sizes:

1½-ton 3½-ton
2-ton 5-ton
7-ton

Hurlburt Motor Truck Company
133rd St. and Harlem River New York, N. Y.

The VACUUM MUFFLER



INCREASES ENGINE POWER

QUICK SALES, GOOD PROFITS

assured Dealer who handles this. Saves gasoline, no carbon, adds power and flexibility. Lighter, tighter, simpler than other mufflers. Only 2 castings, joined by 3 bolts.

Guaranteed Against Blowouts

Write at once for full particulars and generous discounts. This muffler has been proved by car owners in actual service. Never out of order and outlasts the car.

For Ford, Saxon, Scripps-Booth: 1½ in. outside diameter. For Maxwell: 1⅝ in. outside diam. For Allen, Grant, Harroun, Oldsmobile, Briscoe, and 1918 Saxon: 1¾ in. outside diameter. Other cars in proportion.

VACUUM MUFFLER CORPORATION, 154 Nassau St., New York

Vulcanizing With a Vanderpool Vulcanizer Brings Big Profits

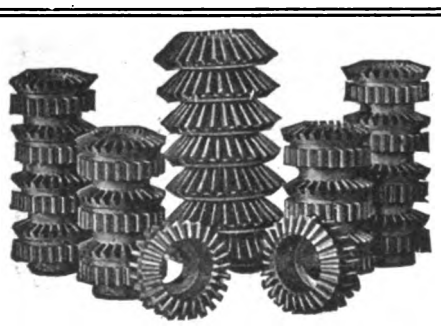


3 Cavity Combination Vanderpool Vulcanizer

Send in this ad with your name and we will mail catalogue and prices.

Here is an exceptional opportunity for Garages as well as Vulcanizing Companies to secure a vulcanizer that will turn out high-grade work at a small cost. The fuel saved alone will pay for the machine in a short time—then you will "cash in" on your investment. This plant, the Vanderpool Vulcanizer, is meeting with enthusiastic approval of hundreds of satisfied users all over the country. Unsolicited testimonials from the various companies now using the "Vanderpool" testify to the dependability, efficiency and economy of this "Vulcanizing Wonder." One man writes that the first month's profits paid for the plant. No experience needed—we teach you how. It occupies very little floor space, and "once bought, you will never have to buy again."

VANDERPOOL COMPANY
Box 82 Springfield, Ohio



GEARS

Complete differentials, gears for transmissions, spur helical and bevel gears for any service.

In any quantities— made to order

NEW PROCESS GEAR CORPORATION
SYRACUSE, N.Y.

GLOBE TIRES GUARANTEED 6000 MILES
REDUCE THE OPERATING COST OF YOUR CAR

Long Mileage Tires MUST Be Hand Made

GLOBE RUBBER TIRE MANUFACTURING CO.
Executive Offices: 1851 Broadway, New York, Factory: Trenton, N.J.





HYATT QUIET BEARINGS

Hyatt Quiet Bearings are appreciated by everyone who drives a closed-car.



The "Big Stick" That Brings Down Gasoline Expense

Up goes the price of gasoline! Maximum mileage is the big problem of the day! Solve it with the New Stromberg Carburetor.



The official world's records made by the New Stromberg in gasoline mileage prove that you need the New Stromberg on your car. Mail coupon for details of how the New Stromberg will reduce your gasoline bills.

Stromberg Motor Devices Co., Dept. 18, 64 E. 25th St., Chicago

New STROMBERG Does it! CARBURETOR

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GUARANTEE
VISIBLE PUMPS

are replacing all the "blind" type pumps at gasoline filling stations and garages.

Fast, accurate, not affected by temperatures.

Guarantee Liquid Measure Co.
Farmers Bank Building, Pittsburgh, Pa.

Selden Trucks

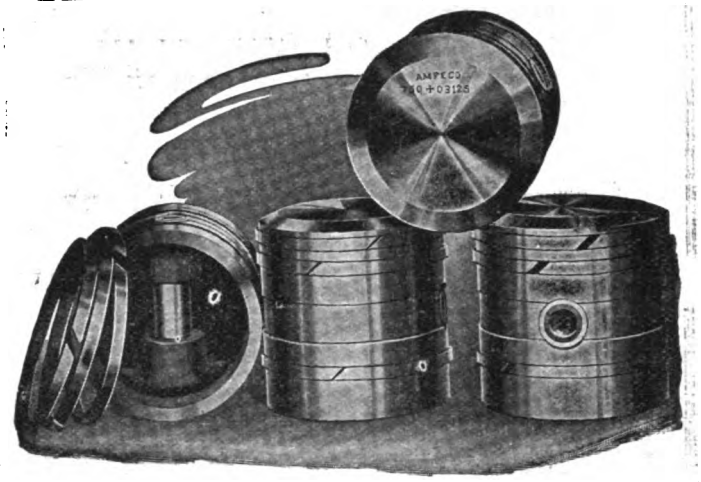
Light Delivery, 1, 2, 3½ and 5 Ton

Write for full information on the Selden Line

DEALERS: Write or wire for desirable territory

Selden Truck Sales Company
Rochester, N. Y., U. S. A.

Fords Converted Into Trucks and Tractors Can Now Use
"AMPECO" PISTONS



FOR EVERY FORD CAR IN SERVICE

Better running trucks and tractors that pay, smoother running passenger cars that skim along easily under every load, inevitably follow when you install "AMPECO" light weight, evenly balanced pistons in your Ford. Overcome main bearing troubles, give increased power and greater speed. Found always in the most efficient motors on Ford cars.

Use "AMPECO" Pistons and You Use The Best

AMERICAN MACHINE PRODUCTS CO.
MARSHALLTOWN IOWA

Exclusive Sales Agents—**Fulton Sales Company,** Suite 1100, 910 South Michigan Blvd., Chicago, Illinois

NEW DEPARTURE BALL BEARINGS



Strength
Stamina
Service



The New Departure Manufacturing Co., Bristol, Conn.
Conrad Patent Licensee



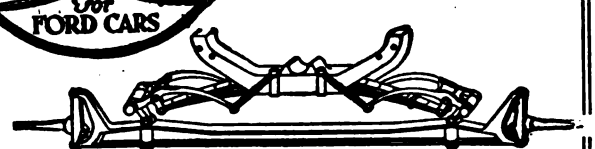
ZENITH CARBURETOR

KNOWN the world over as the *zenith* of carburetor efficiency. A long list of American builders of cars, trucks and aeroplanes believe this simple, plain tube device to be the best insurance for permanent carburetor satisfaction.

Zenith Carburetor Co.
New York Detroit, U. S. A. Chicago

The Original Double-Arm SHOCK ABSORBER W & C For FORD CARS

$10 Per Set of 4



W & C

The Original Double-Arm Shock Absorber Makes As Much Difference As Pneumatic Tires on Fords

Installing a set of W & C double-Arm Shock Absorbers is as good as substituting pneumatics for a set of hard rubber tires. Their resiliency reacts to the immediate advantage of both passengers and mechanism.

They are as desirable on Ford cars as air-filled tires. You *know* how desirable *that* is.

Ask your dealer to-day—and say "W & C."

Some territory still open that needs live dealers. WRITE.

P. H. WEBBER COMPANY
HOOPESTON ILLINOIS

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Genco-Light

Supplies the Farm Home with every advantage of Electricity—Fine proposition for live dealers.

Garages also find GENCO-LIGHT a money saver in battery charging, air compressor work, etc.

Write for particulars

General Gas Electric Company
Hanover, Pennsylvania

Defender Auto-Lock Supremacy



1. Locks coil box and protects units by strong steel band. (Pat. pending)
2. Grounds and short-circuits the entire electrical system. (Pat. pending)
3. Solid aluminum case locks over Ford switch without using screws. (Patent pending)
4. Recognized as standard ignition lock by insurance underwriters laboratories, saves 15% on insurance.
5. Guaranteed for life of the car.

THEY SELL AND REPEAT!

DEFENDER AUTO-LOCK CO., Marquette Bldg.
DETROIT, MICH.

KIMBALL TIRES

Are Doubling Profits for Some Dealers

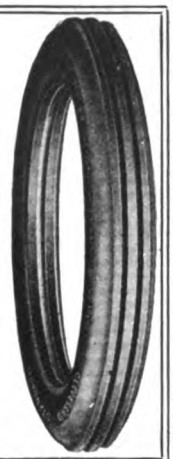
Write for Our Interesting Offer

These tires are sold without a guarantee. Write and ask us how we do it. They are positively *not* seconds, but first-class fresh casings.

	Non-skid	Tubes		Non-skid	Tubes
30x3	$ 7.55	$1.90	32x4	$14.75	$3.05
30x3½	9.85	2.15	33x4	15.75	3.10
32x3½	11.55	2.25	34x4	16.35	3.20

Prices on Other Sizes in Proportion

Send us your order today, accompanied by cashier's draft on Chicago or New York, or money order. Large and small orders given immediate attention. *Write today for territory. Prices will positively be advanced shortly. Place your order now.*



The Kimball TIRE & RUBBER CO Inc.
1469 Michigan Ave., Chicago

This "Straight Side" Type is Made Also in Clincher Type

Inter-State

Use Less Gasoline



Actual signed service reports show that the average mileage per gallon of gasoline among Inter-State owners is 17.27 miles. Drive an Inter-State car and **use less gasoline.**

Sell the Inter-State and save your customers gasoline. Write for our dealers' plan.

$1,000 to $1,025
Effective December 1st, 1917

INTER-STATE MOTOR COMPANY
MUNCIE, INDIANA

Add to Garage Profits by Oxy-Acetylene Welding

savings made, please your patrons and pay good substantial profits.

PREST-O-LITE
Dissolved Acetylene
(Ready-made carbide gas)



adds to the efficiency and usefulness of any good welding equipment. We furnish thoroughly high-grade welding apparatus for $75.00 (Canada, $100.00). The average user will also need gas cylinders at an additional cost, and about $10.00 worth of welding supplies. Truck and special equipment for cutting operations at extra cost.

Send for details of Prest-O-Lite Service for Oxy-Acetylene Welding.

THE PREST-O-LITE CO., Inc.
The World's Largest Makers of Dissolved Acetylene
U. S., Main Office & Factory, 287 Speedway, Indianapolis, Ind.
Canadian Office and Factory, Dept. O-2 Toronto, Ont.

Sexton's

CASTOR MOTOR OIL

The only perfect heat resisting oil because of the compounded pure castor and high grade mineral oils. More miles—less gas.

'Keeps Your Motor Young"

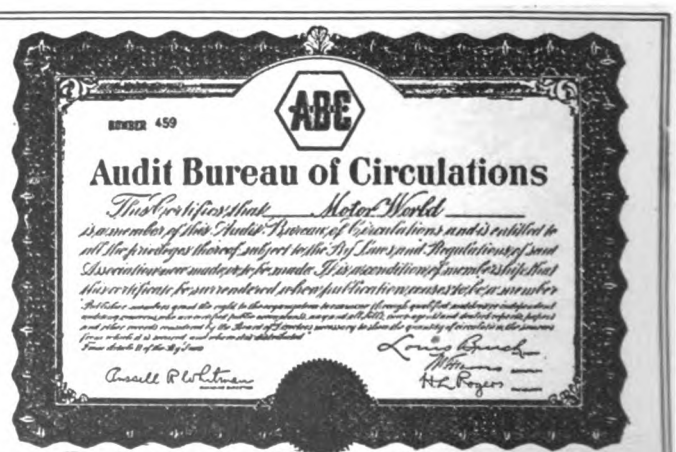
Send for Booklet M-107

SEXTON OIL CO., North Chicago, Ill.

"TRIPLEXD"

The New Gasoline Hose.
Metal, Rubber and Fabric welded into one unit. Guaranteed for one year.
Write for details.

METAL HOSE & TUBING CO.
INCORPORATED
RAYMOND & TILLARY STS.
BROOKLYN, N.Y.



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The Pullmore Front Drive

TRUCK

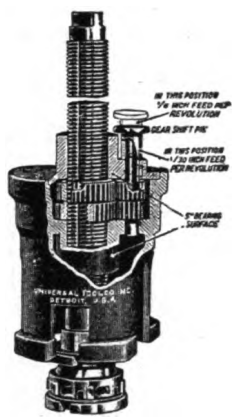
is here

Union Arcade, Pittsburg, Penna.

THE LAIDLAW CO., Inc.
16 W. 60th St. New York City

AUTOMOBILE FABRICS

A Fabric for Every Purpose for Open, Closed, and Convertible Bodies



The New Improved Universal Cylinder Reboring Tool

Is Built to Guarantee Absolute Accuracy

Designed to rebore practically all makes of automobile, tractor, stationary, marine or aeroplane—either open or closed end cylinders, and will rebore a true, round, straight bore. Cutters adjustable from 2½ to 5/16 of an inch. For other new and important improvements—

Specify Catalog No. 6

Write for free illustrated literature with complete details.

THE UNIVERSAL TOOL COMPANY, Inc.
DETROIT, MICH.

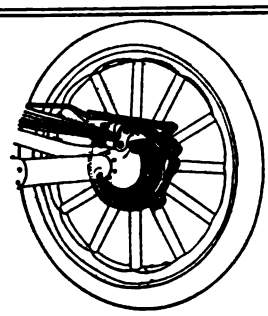
MR. DEALER

One dealer in a town of 3000 people installed Forty Sets of "Pla-Safe Brakes" last March. Another dealer in a crossroads town installed twenty-five sets this summer.

All you need to do is to show a Ford Owner this Brake and he buys it.

Simple to install, no holes to drill. Why not cash in on this fast-selling accessory?

Write for our Disc and Big Selling Plan.



Retail price $10.00 per Set

PLA-SAFE CO. Successors to L. A. Leathers Co. BROOKVILLE, PA.

HAYNES
"Light Six" $1595
"Light Twelve" $2095
AMERICA'S FIRST CAR

Reputation
Product
Publicity

Haynes enjoys a world-wide reputation for building long-lived cars of low upkeep. We intend that, during our *25th Successful Year*, Haynes dealers shall cash in on Haynes reputation to an even *greater* extent. Write

THE HAYNES AUTOMOBILE CO.
70 So. Main St. Kokomo, Ind

TUNGSTEN
TRADE MARK REGISTERED
SPARK PLUG
Always on the job

List of plug sizes for every car and your nearest jobber's name on request.

The Quality Plug



TUNGSTEN MFG. COMPANY
Marshalltown Iowa

VULCAN QUALITY
AUTOMOBILE SPRINGS

SPRINGS IN STOCK FOR ALL CARS
90,000 Springs. 588 Types.
6—FACTORY BRANCHES—6
St. Louis, Mo. 1402 Chestnut St. Minneapolis, Minn. 1024 Hennepin Ave.
Reading, Pa. 533 Franklin St. Ft. Worth, Tex. 708 Commerce St.
Sumter, S. C. 29 Caldwell St. Richmond, Ind. Colonial Bldg.
FACTORY RICHMOND, IND.
JENKINS VULCAN SPRING CO.

TRUXTUN

Converts *any* car into a substantial 1-ton or 1½-2-ton truck

Exclusive territory and attractive dealer proposition

COMMERCIAL CAR UNIT CO.
Philadelphia, U. S. A.

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DETROIT BATTERIES

last approximately six months longer than the average battery. They are about 15 per cent more powerful in proportion to size and cost.

This is why their sale is now increasing on an average of over 60% every four weeks—a record no other battery has ever approached.

DETROIT BATTERY CO., Detroit, Mich.
Eastern Branch, 68th and Broadway, New York City

EISEMANN MAGNETO

THE EISEMANN MAGNETO CO.
Sales and General Offices: 32-33rd St., Brooklyn, N. Y.

Chicago, Ill.
910 So. Michigan Ave.

Detroit, Mich.
802 Woodward Ave.



Powerful
Durable
Dependable

Standard
Equipment for
117 Manufacturers

Established 1849

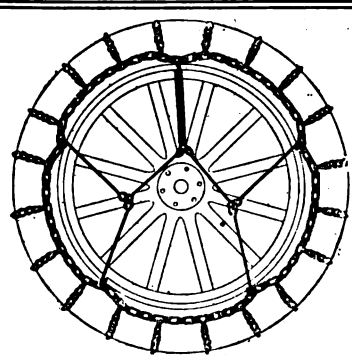
Louis Dusenbury & Co

Incorporated

Manufacturers and Importers

Cloths,
Carpets and Silks

New York Detroit



Merchant's Anti-Skid Chain Tightener at $1.00

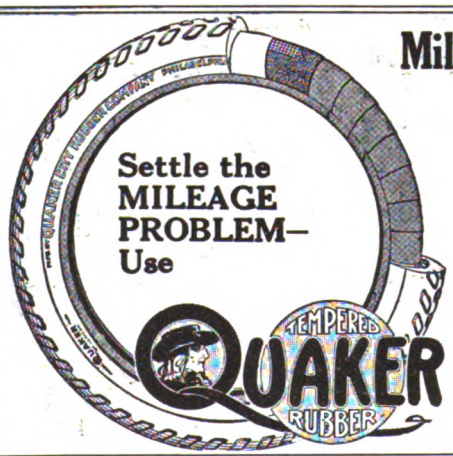
a pair offers a swell opportunity for profits to dealers. It keeps the chain from running too loose and pounding on the fender, yet allows it to creep around the wheel.

Simple, light, neat, compact, durable — easily carried and easily applied.

If your jobber can't supply you—write for our liberal proposition.

M. H. MERCHANT
Manufacturer

J. H. SCHAMEL
Exclusive Selling Agent
236 and 238 Emma Street
Syracuse, N. Y.



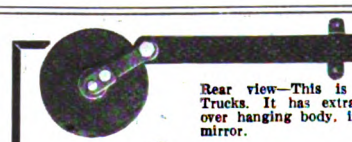
Miles Cheaper

Settle the MILEAGE PROBLEM— Use

Users Report Records of

8,000
10,000
12,000
15,000
Miles

Quaker City Rubber Co.
Philadelphia



Rear view—This is a Style D—Hindview Mirror for Trucks. It has extra long, staunch arm—to see around over hanging body, is finely finished and has plate glass mirror.

Hindview Auto Mirrors

offer an unusual opportunity for profits to Dealers and Jobbers because they are handsome in appearance, well made and low in price. A style for every car. A great line. Write for proposition and catalog.



KALES STAMPING COMPANY, 449 Lafayette Blvd., Detroit



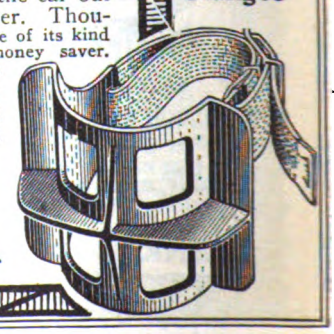
Fulton Mud Hooks

$1.90 per set of two. Lift the car out instead of digging it in deeper. Thousands in use. Most effective device of its kind on the market. A time and money saver. Act with steady lift which does not strip the differential gears. Made of malleable iron with strong web trap. Put on or take off in a minute. Occupy small space.

At your dealers or by mail, postpaid. Give size of rear tire in ordering.

THE FULTON CO.
1910-12 St. Paul Ave., Milwaukee, Wis.

Note the Side Flanges



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STYX

Reg. U.S. Patent Office

THE PATCH ETERNAL

Not merely a piece of rubber with a cloth back, but a scientific composition made with that definite purpose of permanently repairing injured inner-tubes.

Sold only through your jobber. If he is unable to supply you write direct.

OUACHITA TIRE & RUBBER CORPORATION
MONROE, LOUISIANA

BETHLEHEM
MOTOR TRUCKS
"Dependable Delivery"

$1245
1½ Ton Chassis

$1305
1½ Ton Complete with body and cab

$1775
2½ Ton Chassis

$1850
2½ Ton Complete with body and cab

F. O. B. ALLENTOWN

Built to dominate the truck business in your territory—backed by the Bethlehem guarantee and a strong national advertising campaign. Is your territory covered?

BETHLEHEM MOTORS CORP'N
ALLENTOWN, PA.

Price
$7.50



Rothweiler Pump

Empties a Barrel or Drum Completely

No Waste No Drip

Good for Oil, Gasoline, Turpentine, Light Paint, etc.

Works Easily, Quickly and Efficiently

A Great Trouble Saver

ROTHWEILER & CO.
Seattle, Wash.

MASON TIRES
MEAN MORE MILEAGE
THE MASON TIRE & RUBBER CO.
Factory and Home Office: Kent, Ohio

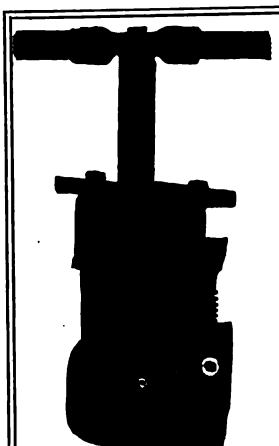
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Makers of Springs and Axles for Heavy Duty Service for more than Fifty Years

SHELDON
WORM GEAR AXLES

SHELDON AXLE & SPRING CO.
WILKES-BARRE : : : : : PENNA.



THE STORM & O'HAIR
Cylinder Reboring Machine

is adjustable and will rebore practically all makes of

Automobile, Aeroplane, Motor Cycle, Light Marine, Tractor and Stationary Motors

It is simple, speedy and accurate and can be used by anyone familiar with tools.

Indispensable in any repair shop.
We furnish oversize pistons for all makes of motors.

FOR SALE BY LEADING JOBBERS

For further information address

Storm Manufacturing Company
426-27 W St. Thompson, Iowa

THE FULTON TRUCK
1½ Ton Capacity
Has created the world's standard in motor truck value

If you are interested in a real money making agency where selling resistance has been reduced to a minimum, communicate with us NOW.

Fulton Motor Truck Co., Farmingdale, L. I., N. Y.



ATWATER KENT



SCIENTIFIC IGNITION

ADDRESS ALL COMMUNICATIONS TO
4940 STENTON AVE., PHILADELPHIA.

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FORD CAR OWNERS USE KEROSENE
(COAL OIL)

One mile on Kerosene costs less than ½ cent
One mile on Gasolene costs from 1¼ to 1½ cent

Buy a Detroit Kerosene Equipment

SAVE 60%

Price of Equipment $25.00 f.o.b. Detroit
30 days' trial or MONEY BACK

ACT PROMPTLY!

These are days of strict economy

Detroit Kerosene Carburetor Company

Kresge Bldg. Department 21 Detroit

The BEST wrench in the WORLD



"WESTCOTT"

"Westcott" is the original, adjustable "S" wrench—more convenient for motor work than any other wrench.

"Westcott" superiority is shown by its popularity with the best mechanics. It is used in the Ford factories and by many other automobile concerns.

Malleable Iron Handle—Forged Steel Jaw.

Sizes 6 to 14 in. (open from ¾ to 2 in.) Price per doz., $8.00 to $21.

Get them in your catalog

THE KEYSTONE MANUFACTURING CO.
Buffalo N. Y.



DEALERS—JOBBERS

Stock the fastest-selling winter accessory. Season now on. Live for sales 3 months out of 12.

UTILITY
Protected Foot Rail
HEATER

Sells big wherever introduced. One model fits all cars except Fords. Immediate action necessary to secure territory. Standard Model, $15. Utility Front Seat Heater, $10. Utility Jr. for Fords, $7.50. Ask for prices west of the Rockies.

HILL PUMP VALVE CO.
Archer Ave. & Canal St., Chicago
Eastern Sales Office, 149 Church Street, New York
Mfrs. of the famous Utility Auto Specialties



CHASE Leatherwove
'Tis like the hide in most respects In some respects 'tis better

The long-wearing, rich-appearing motor-car upholstery that can be used to better advantage than genuine leather.

L. C. CHASE & CO., BOSTON
NEW YORK DETROIT CHICAGO
Leaders in Manufacturing Since 1847



"UNION" AUTO FUSE MATERIAL





Fuses are designed to give positive protection to wiring and fittings in all types of autos with the least amount of potential drop.

FUSE BOX

SPECIAL PARTS AND STAMPINGS

Send B/Prints or Samples and let us quote prices.

CHICAGO FUSE MFG. CO. CHICAGO AND NEW YORK

AUTO TOPS FOR ALL CARS

We can save you ⅓ the cost of a new Top



Write us at once. Ford Tops, One Man Tops, Seat Covers for all cars, Top Covering for any car, Radiator and Hood Covers, Auto Tires and Tubes, Wheels, Fenders, Racing Seats, etc.

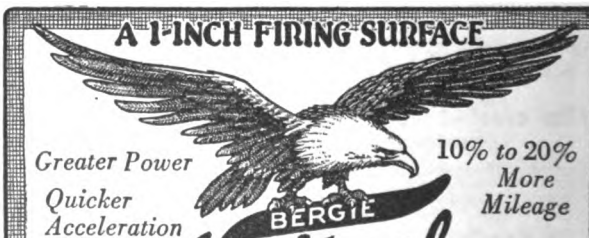
Write us at once; let us teach you how to save money

BUOB & SCHEU
225 Webster St., Cincinnati, O.

BURD
High Compression
PISTON RINGS
"The Accepted Standard"

BURD HIGH COMPRESSION RING CO.
ROCKFORD, ILLINOIS
Sales Offices in All Principal Cities.

A 1-INCH FIRING SURFACE



Greater Power
Quicker Acceleration
Less Carbon

10% to 20% More Mileage

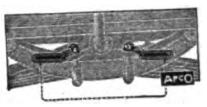
Price $1 Each

BERGIE
National
SPARK PLUGS
Dealers Write

BERGIE NATIONAL SPARK PLUG CO., Rockford, Ill.

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FRONT LICENSE BRACKETS FOR FORDS



Without a doubt the most popular Accessory for Fords on the market. List Price seventeen cents. Dealers in quantity, one-third off. Ask your jobber.

APCO MFG. CO. PROV., R. I.

Cored Bars

HIGH SPEED NON-GRAN BEARING BRONZE

For Bushings

AMERICAN BRONZE CORPORATION
BERWYN, PENNSYLVANIA
Sole Manufacturers of Non-Gran and Largest Exclusive Manufacturers of Bearing Bronze in the World



KEYSTONE SHOCK ABSORBERS

Ask us to send you a set of these, along with descriptive booklet and dealer proposition —if you are selling automobile accessories.

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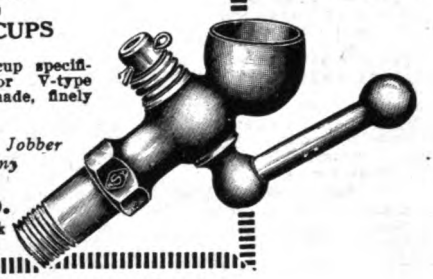
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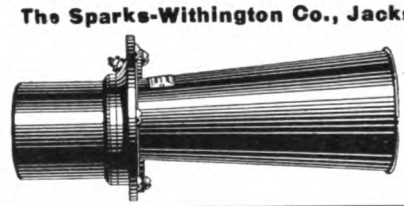
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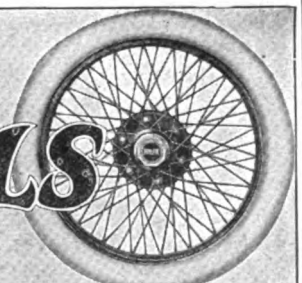
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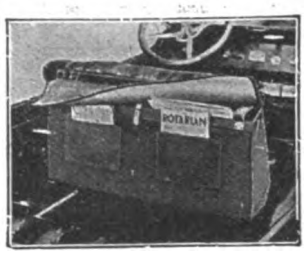
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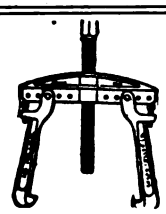
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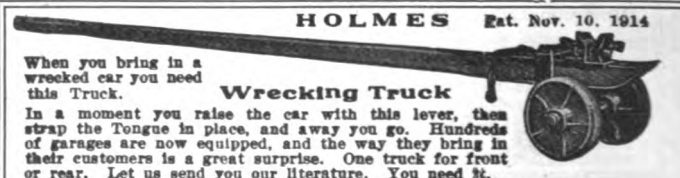
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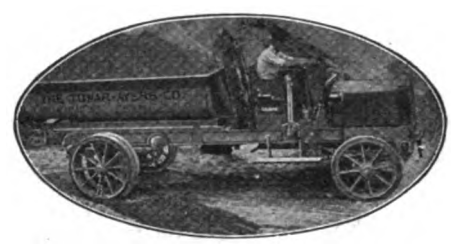
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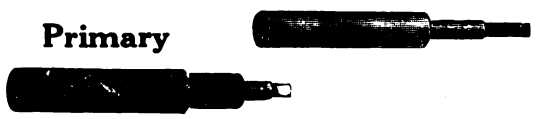
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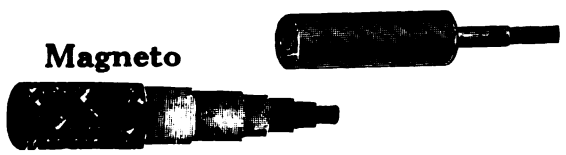
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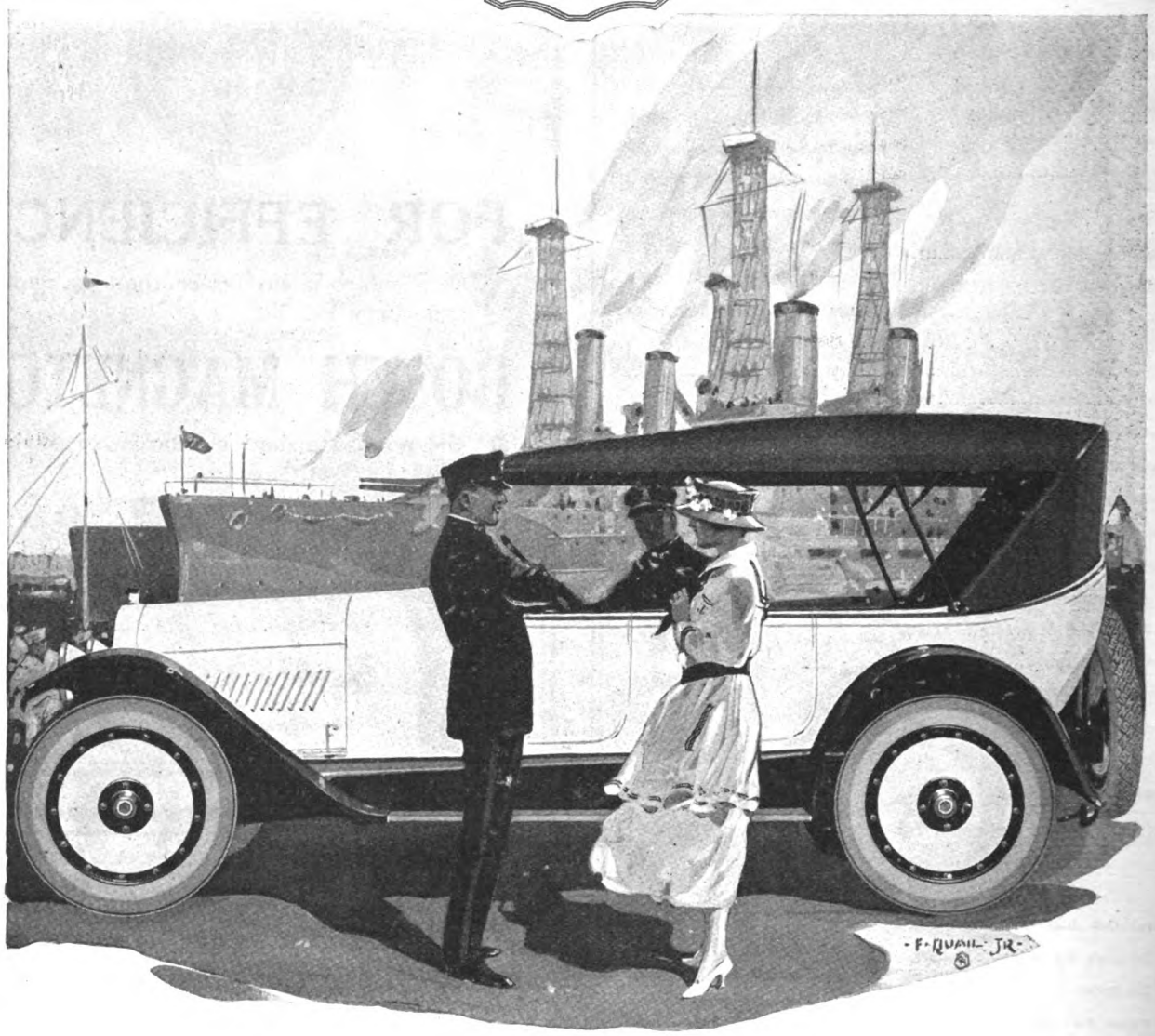
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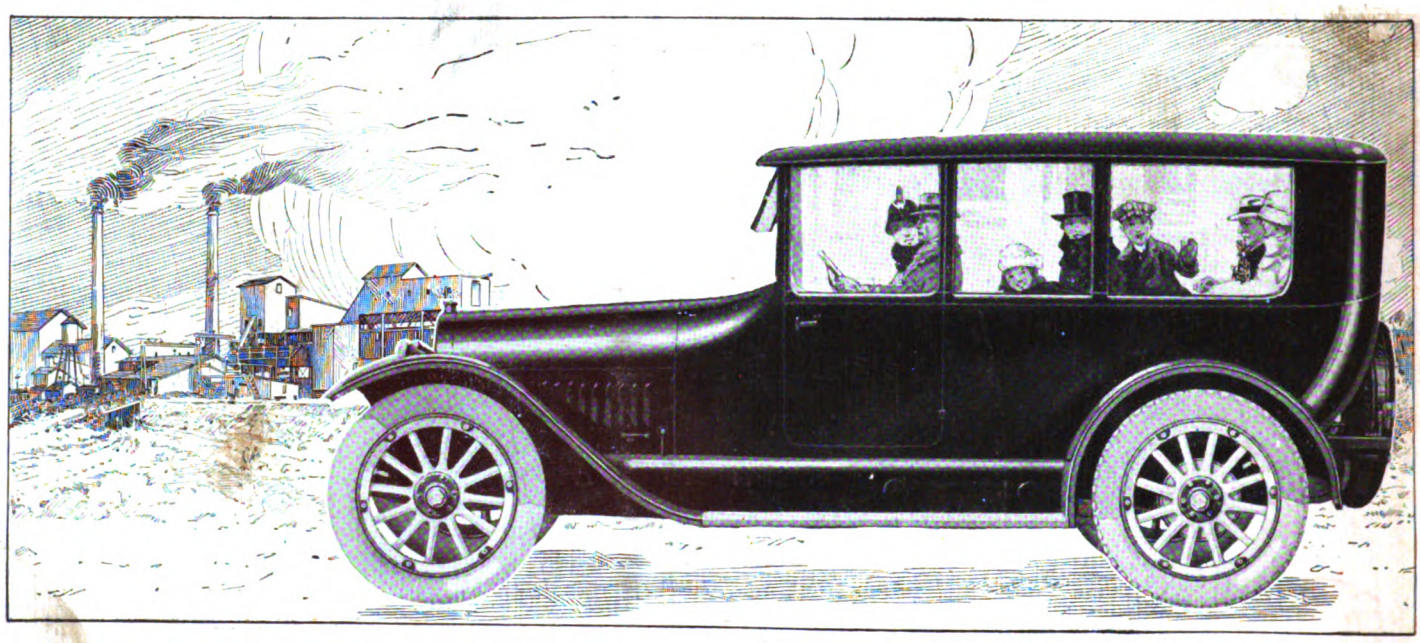
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for
DEALERS, JOBBERS AND GARAGEMEN

Volume LIV
No. 6

New York, February 6, 1918

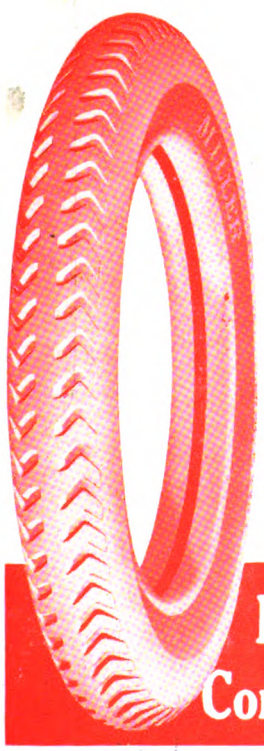
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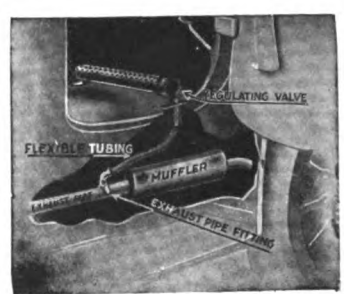


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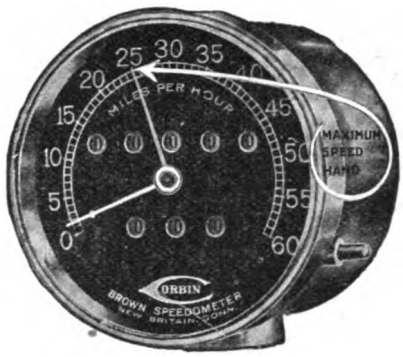
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It starts in telling the truth and keeps on telling it as long as the life of the motorcycle.

Apart from its undeviating accuracy one of the most valuable features of this universally used instrument is its great durability. This is due to the nature of its mechanical construction, which is simplicity in itself. Its parts are few, large and strong. They decrease the chance of breakage and reduce friction to a minimum. Thus at all times the Corbin-Brown operates smoothly and dependably. Furthermore, no matter what may be the condition of the weather, either extremely hot or cold, the accuracy of the Corbin-Brown record remains totally unaffected.

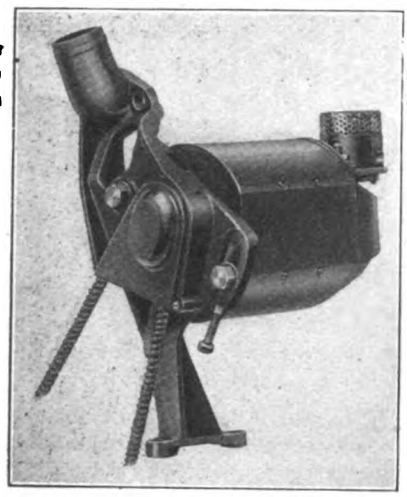
For absolutely satisfactory speedometer service start the 1918 season with a Corbin-Brown Speedometer. At motor and accessory stores everywhere.

Write for catalog.

The Corbin Screw Corporation
The American Hardware Corporation, Successor
NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia
Makers of Corbin Duplex Coaster Brakes for Bicycles

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The Genemotor as an Investment

THE GENEMOTOR IS AN INVESTMENT, as much as the Ford itself. It furnishes you with unfailing power for starting and lighting regardless of weather conditions. It provides you with electric light at all times, protecting you against accidents in night driving or while your Ford stands idle at the curb.

The GENEMOTOR costs more than most Ford starting systems because there is more value **built into** it. We felt the **first** duty was to build the **best** regardless of price rather than to **set a price** and **cheapen** the product by **skimping** on materials.

Genemotor
Trade Mark

"It starts your Ford and Lights it too"

GENEMOTOR is a "single unit" system requiring less space, weighing less and requiring less time to install than any other Ford Starting System.

A novel system of winding (Patented) eliminates switches, cut-outs, extra brushes and other mechanical devices for changing from a generator to a motor and vice versa. It is simplicity itself.

Prompt delivery of all orders guaranteed.

Built by the General Electric Company

Price $90, f. o. b. Lynn, Mass. Sold everywhere.

Prest-o-Lite Batteries Standard Equipment

Send for 1918 GENEMOTOR catalogue

A. J. Picard & Company, Inc., New York
General Distributor **61st Street at Broadway, N. Y.**

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LIV New York, U. S. A., Wednesday, February 6, 1918 No. 6

Backbone

Will Save the Industry

If All the Dealers in the United States Buck Up and Go Into 1918 in a Patriotic, Fighting Business Spirit They Can All Keep Their Organizations Intact, Make Money

and Help Win the War

By Ray W. Sherman

CHICAGO, Feb. 2.—The Chicago show, which ended to-night, has developed one big fact. It is this:

Backbone can save the motor-car industry.

The absence of backbone will work great harm during 1918.

And what is this backbone? It is nothing but a fighting spirit in business on the part of America's 30,000 dealers. It is their determination to cut out all this blue-funk stuff and wipe away the clouds of gloom that have so enveloped some of them that they could start now and count up the profits they won't get this year.

Before the New York show everybody wondered in what condition the industry was. The New York show demonstrated that the old industry is still here.

The Chicago show added to the demonstration, and thousands of dealers who came from the great West to this show have gone home with new hearts and new hopes—and they're going to go after business in 1918.

Out here in the West there is more optimism than in the East. Folks out here are closer to the food-producing soil that is working overtime to help win the war. The western dealer is not easily discouraged—but he did and does need a stiffening of backbone to bring him back.

Furthermore, this backbone matter has been put on an organized basis, and confidence is to be restored all along the line in the shows that are scheduled to follow Chicago.

The National Association of Automobile Show Managers—made up of the men who run the country's big dealer shows, some of which are bigger than the national shows—held a wonderful meeting here this week and took steps to bring the dealer army into full fighting trim.

Cleveland Started the Ball

The idea had its first big try-out at the Cleveland show, where the Cleveland association staged a big luncheon during the show and had Hugh Chalmers there to drive home the message of we-must-do-business.

The message was so big and the meeting so successful that there was no doubt of the plan's desirability. So, when the show managers met they outlined other meetings to be held all around the circuit.

Next week there is to be a big meeting in Minneapolis. Speakers who know the national situation, who know the industry and who know the dealer trade will tell the dealers of the Great Northwest why they must get up on their toes and fight harder for business during 1918 if they are to do their bit toward winning the war.

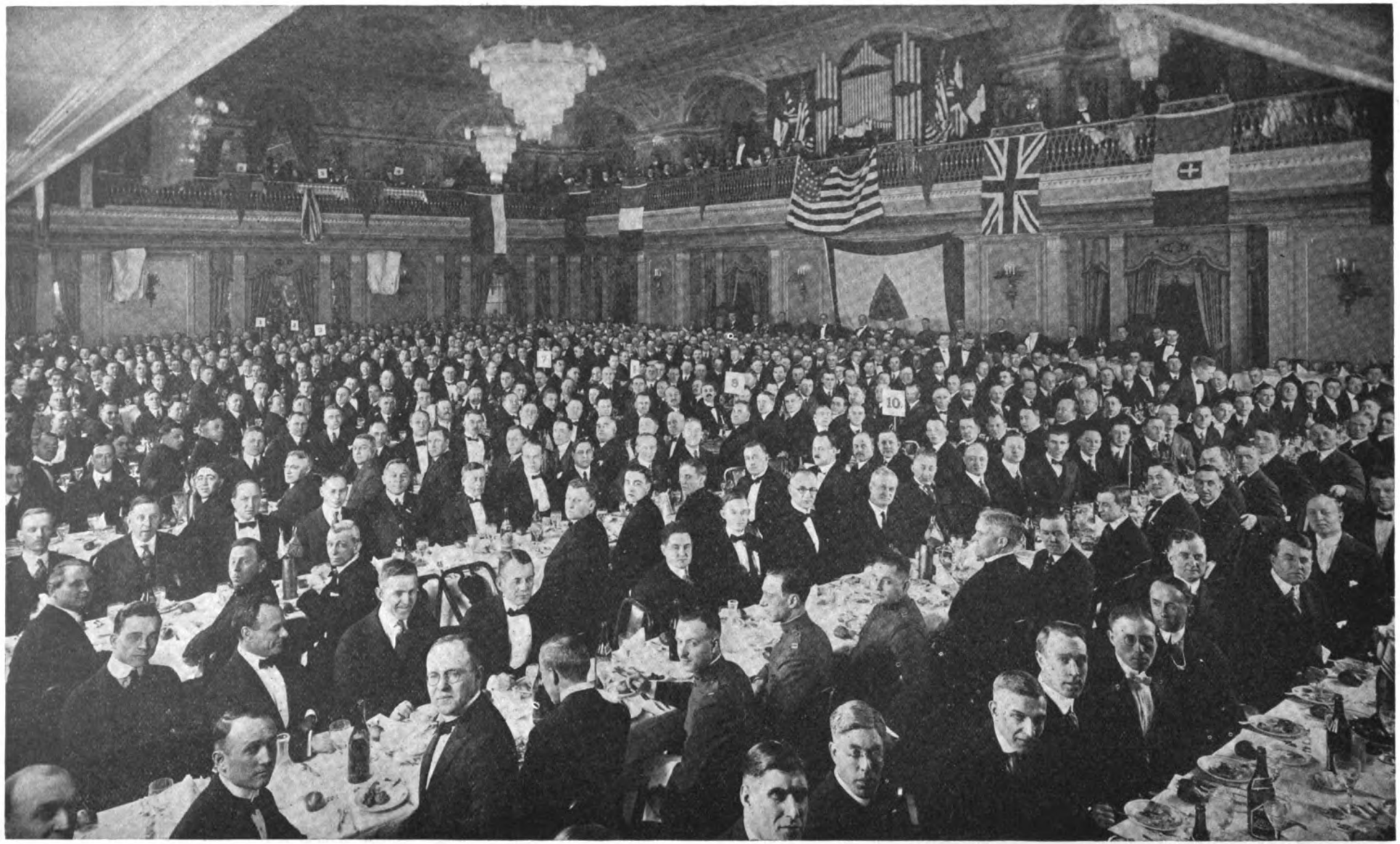
The week after Minneapolis comes Kansas City. And there is to be one—and possibly more—at which the message of we-must-do-business will be carried to the dealers of the Great Southwest.

After Kansas City come St. Louis and Des Moines, both the same week. Each of these towns has scheduled territorial dealer meetings, with speakers to carry to the dealers the story of why and how they must do business in 1918.

The end of the big show circuit is Boston, and this city is planning a great New England rally, attended by hundreds of dealers, with possibly Hugh Chalmers to carry to the great New

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War Dinner of the Society of Automotive Engineers During the Chicago Show



MORE than 1200 persons attended the first war dinner of the Society of Automotive Engineers, which was one of the most important functions during the Chicago Show. The dinner was patriotic from start to finish, what with its Hooverized menu and the presence of a number of persons who are high up in national affairs.

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Where Elgin Dealers Broke Bread Together

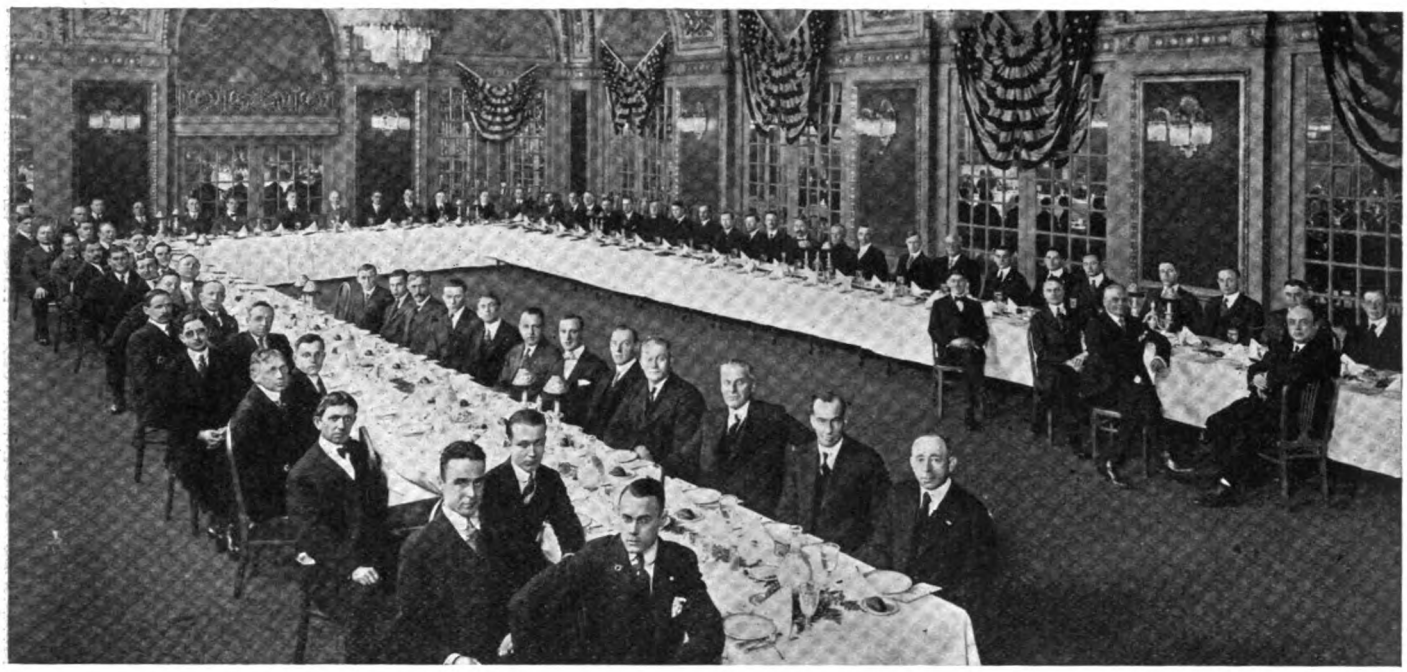


Photo by Kaufmann & Fabry Co.

England army his thrilling story of how pessimism and blue funk won't win the war.

And the idea isn't done with even after the shows are over. Cleveland is planning more of these meetings, one about the first of March. Other cities are considering extending the idea throughout the coming months.

Alfred Reeves, general manager of the National Automobile Chamber of Commerce, has enlisted himself in the cause. He visited the meeting of show managers and volunteered to speak at as many meetings as he could make. He is going to Minneapolis, Des Moines, Omaha, Kansas City and other towns.

All of these meetings are for the purposes: 1—To show the dealers the real situation, and 2—To show them why they MUST do business in 1918.

The dealers who go after business in 1918 will get it. Those who don't go after it stand a fine chance of being wiped out, and any dealer who can't stand up and fight for business when his country needs business might just as well be wiped out this year as any other time—and the sooner the better.

Making Dealers Better Fighters

All of this is to make the dealer a better fighter, and to supplement his fighting the show managers' association has launched a big advertising campaign that will help make the prospect see that hiding money in an old sock is the rankest of unpatriotism.

The association is to prepare a series of business advertisements of page size for use in the daily newspapers. The copy for these ads is to be furnished without charge to more than 100 cities. With the copy will be the suggestion that the ads be run in the papers of these 100 cities and the expense pro-rated among

HAVE YOU SEEN——?

In This Issue

1—SPECIFICATIONS

THIS is the first issue in the month; and so you will find on pages 16 to 34, inclusive, complete specifications of passenger cars, trucks and prices of tires and tubes. These tables are invaluable for reference.

2—UNTANGLING THE INCOME TAX

IT would almost take a Philadelphia lawyer to fill out an income tax blank properly—that is, without the help of this splendid article by George F. Kaiser. The table will tell you exactly the amount of *your* tax.

3—HOW MUCH DOES IT COST TO DRIVE-AWAY?

EVERY dealer will have to drive his cars and trucks from the factory soon. This article tells how much it is costing several dealers in different cities; and it gives a number of good routes. Read *it!*

And Now For NEXT WEEK

How the Herring Motor Co. Runs Its Business

IN LAST WEEK'S ISSUE

BOYS, it's just a case of hard work from this time on. What you *will*, you will get. That was the great message that came out of the Chicago show. It's a business crowd at the shows this year, and this means there must be a business organization to meet the crowd.

CLEVELAND had a wonderful show. It was well planned. The dealers went at it (1) to get the crowds; (2) to sell more cars, and (3) to study the drive-away problem. And they're succeeding better than they hoped.

DID you read that story about Lee Cuson and what he is doing to *find out* about his advertising appropriations? You ought to because it is all meat.

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the dealers. This will provide a maximum display at a minimum of expense.

The copy is to be prepared by Herbert Buckman, assistant to Manager Fred H. Caley of the Cleveland show and publicity manager for that exhibition. The first ads are already in the mails. If you don't get yours write to Buckman.

These ads will not advertise shows or cars, although mention of the show may be worked in if the ads are used in connection with any of the shows in these 100 cities. The ads will simply tell the story of why America must have business and why the "ragged coat badge of honor" philosophy is the worst sort of thing at this time.

Where the Money Goes

There are thousands of people in the United States who believe they should not spend money. They do not know that the money that goes for a fancy necktie helps the storekeeper pay his rent, helps pay the clerks, helps buy food and clothes for the clerk's family, helps run the factory where the tie is made, helps pay the wages of the tie makers, helps buy food and clothes for their families, helps keep industry spinning, helps keep the holy dollars in circulation in war work, and provides livelihood for thousands who would suffer if the necktie business were abruptly suspended. The ads will show how the man who spends money does so for those who must spend to live.

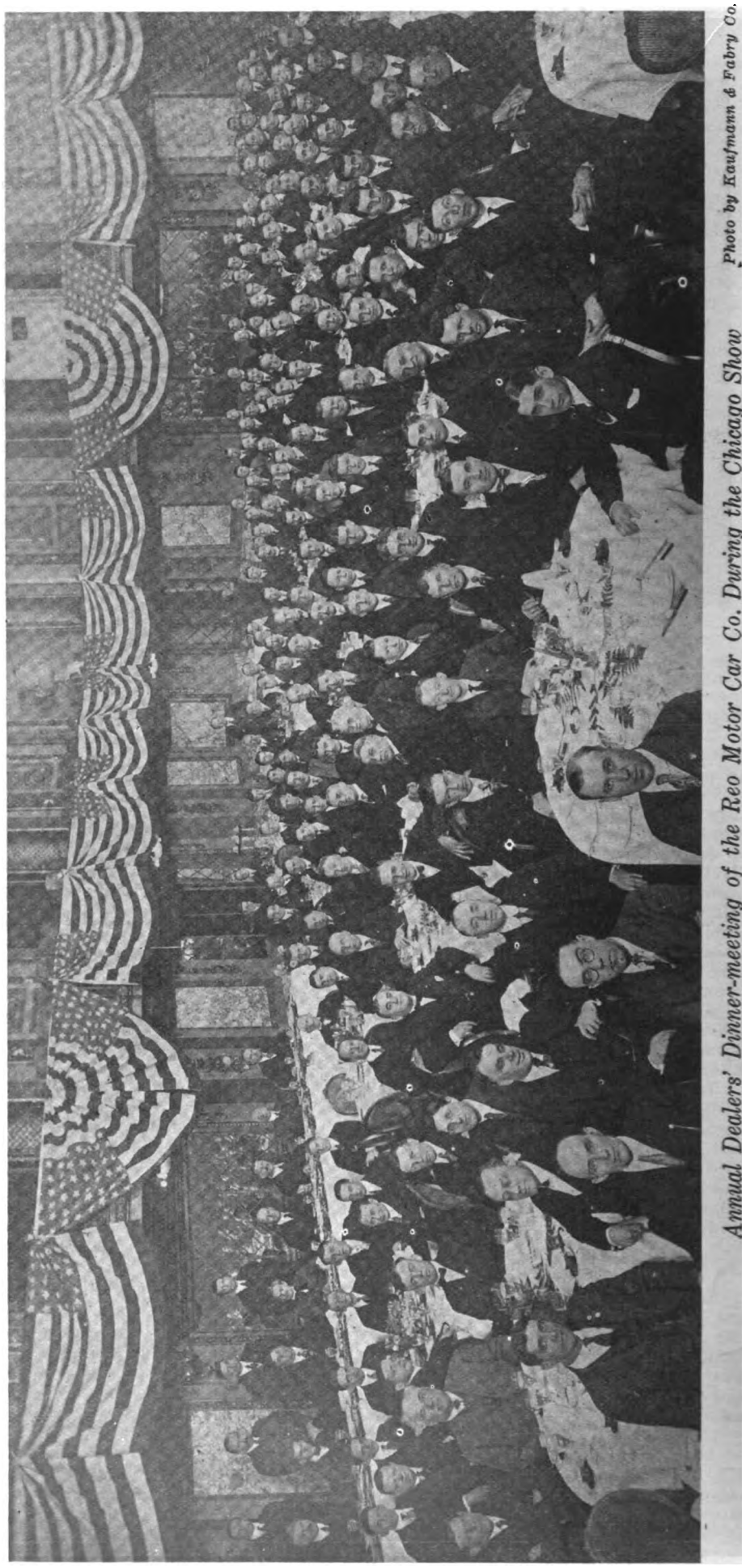
The idea has been tried out in several places. Newark, N. J., has tried it. Milwaukee ran a series of ten ads by E. Le Roy Pelletier; Kansas City is spending $10,000 on this work and Boston will do the same. The show managers, most of whom are association secretaries and officers and leaders in their sections, are back of the work unanimously and determined to overlook no step that will keep business on an even keel.

Sane Patriotism Takes Form

Never until the Chicago show did the idea of sane patriotism in business assume such concrete form. The leaders now seem to be lined up solidly on the right track. All that remains is co-operation from those who have not been co-operating.

The dinners given by manufacturers to their dealers at the Chicago show have been a big help. Invariably they have hammered home the thought that restriction in business can't win a war. Some of the manufacturers pursued the questionable plan of not having pictures taken of their dinners. It is said that some of them regarded this as unpatriotic. All of which leads one to wonder if there are some manufacturers who need to get out into some of these dealer mass meetings and let their own dealers sell them on the big thought of business activity instead of restriction and inaction. How can a dealer be expected to have backbone when the manufacturer assumes an attitude like this?

The dealers of wide vision are starting now for the big spring push. They are going after business. One Chicago dealer with twenty salesmen is going to



Annual Dealers' Dinner-meeting of the Reo Motor Car Co. During the Chicago Show *Photo by Kaufmann & Fabry Co.*

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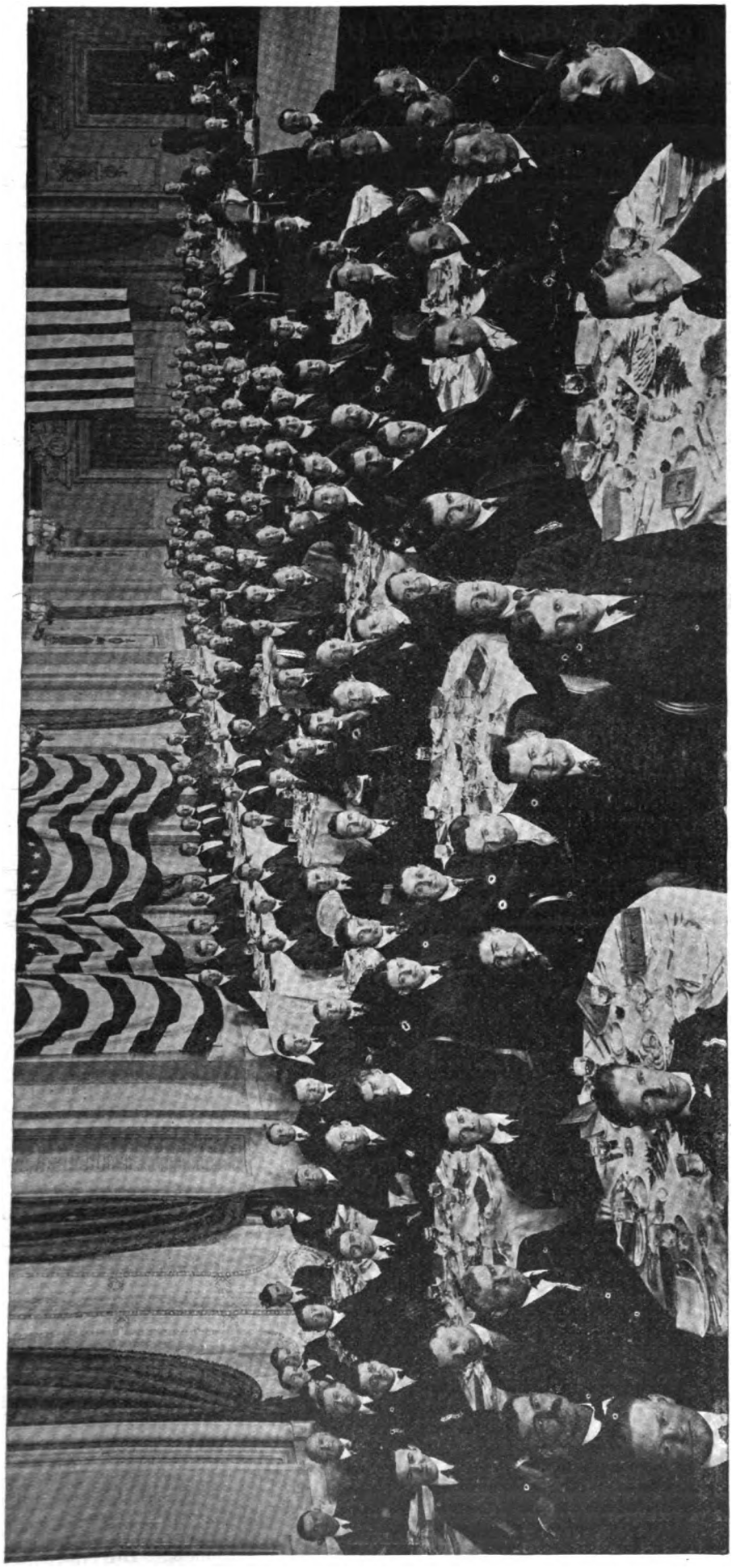


Photo by Kaufmann & Fabry Co.

Where Paige Dealers and Distributers Gathered During the Chicago Show

put on twenty more. He is going to sell cars.

Down in Kansas City Show Manager E. E. Peake, who is also president of the show managers' association, has sent to each dealer a letter stating that any salesman who stands around an exhibit and looks like a funeral guest will be asked to go home. They have already tied the can on Old Man Gloom in that part of the world.

At the Maxwell-Chalmers dinners here Thursday night Sales Manager Thomas J. Toner told the dealers that any man who lies down on the business he is in is a slacker. Movies showed salesrooms in Harry Newman's territory about Chicago, and from the way the front doors were shoveled out it looks as though the big idea had taken hold in this part of the country.

Some big distributers who are here laugh when asked about spring business. They just haw-haw and tell of the 700 or 800 cars they have in storage waiting for the opening of the season. Some are pushing them out now and getting them into the hands of retail buyers.

One big distributer, who hopes for 8700 Buicks this year, said there was no question about business if the dealers waked up to the opportunity.

In all the hotel lobbies people are talking of the coming year. There is an air of hustle and push. Thousands are planning on how they may make greater efforts in 1918—and thousands more are listening to the conversation of the thousands of hustlers.

The propaganda of backbone has begun. It is the greatest anti-German movement ever undertaken by a trade. It is another blow at the Kaiser. It is cutting hours off the length of the war.

It is the automobile man's American answer to the challenge of the tyrant who shackled God to his standard and said he would crush the world.

Our trade has begun to do its bit.

Vesper President of Dealers' Association

National Organization Selects St. Louis Man and Begins New Year with Membership Campaign

CHICAGO, Feb. 1—The National Automobile Dealers' Association, which was formed last summer in this city, has chosen a new slate of officers and hopes to attain a large membership this year through plans that are now being considered by the board of directors.

The new president is Fred W. A. Vesper, of the Vesper-Buick Co., St. Louis, who previously was second vice-president. The by-laws have been amended to admit dealers who are not members of city associations, thus providing for the membership of dealers in unorganized cities and small towns.

The new plan does not change the voting power of delegates, for each association that is affiliated sends to con-

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National Association of Automobile Show Managers in Annual Meeting



1—Vice-President Bart J. Ruddle, secretary, Milwaukee Automobile Dealers, Inc. 2—T. D. Beard, assistant secretary, Chicago Automobile Trade Association. 3—Dean Schooler, president, Des Moines Automobile Dealers Association. 4—John Eustis, manager, Automobile Salon, New York and Chicago. 5—A. C. Heath, president, Fort Dodge (Iowa) Automobile Dealers Association. 6—Joseph T. Peacha, Duluth Automobile Dealers Association. 7—President E. E. Peake, secretary, Kansas City Motor Car Dealers Association. 8—Secretary-Treasurer Ray W. Sherman, Motor World, New York. 9—Joseph M. Grasser, president, Toledo Automobile Show Co. 10—H. V. Buelow, manager, Toledo Automobile Show Co. 11—Warren E. Griffith, president, Toledo Automobile Show Co. 12—Prince Wells, president, Louisville Automobile Dealers Association, and show manager. 13—Chester I. Campbell, secretary, Boston Automobile Dealers Association. 14—C. G. Van Vliet, secretary, Des Moines Automobile Dealers Association. 15—George W. Franklin, vice-president, Detroit Automobile Dealers Association. 16—M. V. Duggan, secretary, Sioux City (Iowa) Automobile Dealers Association. 17—G. M. Seeman, Sioux City Automobile Dealers Association. 18—H. M. Files, Cedar Rapids (Iowa) Automobile Dealers Association. 19—H. G. Lyman, secretary, Cedar Rapids Automobile Dealers Association. 20—Herbert Buckman, assistant secretary, Cleveland Automobile Show Co. 21—George E. Twitmyer, Cleveland Automobile Show Co.

Arriving after the picture was taken were: W. E. Mallory, director, Kansas City Motor Car Dealers Association; Joseph A. Schlecht, president, St. Louis Automobile Dealers and Manufacturers Association; Alfred Reeves, general manager, National Automobile Chamber of Commerce; David Beecroft, directing editor, Motor World, New York.

ventions one delegate for each twenty members and that delegate has twenty votes. Each member is represented by one vote.

Since the date of organization the association has received in dues $5,940 and has left in the treasury $2,642.02. There are 594 members, made up of individuals in several sections and the total dealer membership of city organizations as follows:

Worcester, Mass., 18; Louisville, Ky., 15; Minneapolis, 33; Des Moines, 30; Atlanta, 13; Brown County, Iowa, centering in Davenport, 12; Albany, 17; Los Angeles, 58; Chicago, 76; Oklahoma City, 20; Boston, 44; St. Louis, 43; Rocky Mountain Automobile Trade Association, centering in Denver, 31; Cleveland, 34; Kansas City, 64; Dallas, 25; Milwaukee, 42. Quite a number are listed from Philadelphia as individuals and not through the association. The membership fee is $10. Fifteen states are represented.

The new officers are: President, Fred W. A. Vesper, St. Louis; first vice-president, John A. McAlman, Boston; second vice-president, Prince Wells, Louisville; treasurer, Thomas J. Hay, Chicago; directors: George W. Browne, Milwaukee; John H. Johnson, Boston; George D. McCutcheon, Atlanta; P. E. Chamberlain, Denver; P. H. Greer, Los Angeles; A. E. Maltby, Philadelphia; J. A. Graham, Minneapolis; C. A. Forester, Cleveland; Dean Schooler, Des Moines.

What Washington Has Done

The meeting was addressed by Alfred Reeves, general manager of the National Automobile Chamber of Commerce, who told of the work that has been done at Washington since the war started and who urged the dealers to become more strongly organized and to take an active part in national affairs.

The lack of effective organization at the time the present tax on cars came up was pointed out as a sample of occasions that are likely to arise at any time.

The association is also endeavoring to co-operate with the Commercial Economy Board of the Council of National Defense through a War Service Committee.

The delegates voted in favor of a strong membership campaign and a campaign of education throughout the trade. Great attention is to be paid to good roads. It was suggested that an electrotype with the name and emblem of the association be furnished members for use on their letterheads.

The selecting of a field secretary is to be left to the board of directors.

Show Managers' Meeting

CHICAGO, Jan. 31—A national advertising campaign to boost business was planned yesterday at the annual meeting of the National Association of Automobile Show Managers, together with dealer mass meetings at all the shows where it is possible to make arrangements. Hot-shot speakers are to be secured to convey to the dealers the need for backbone in business. The details

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Annual Dinner of Velie Dealers and Distributers

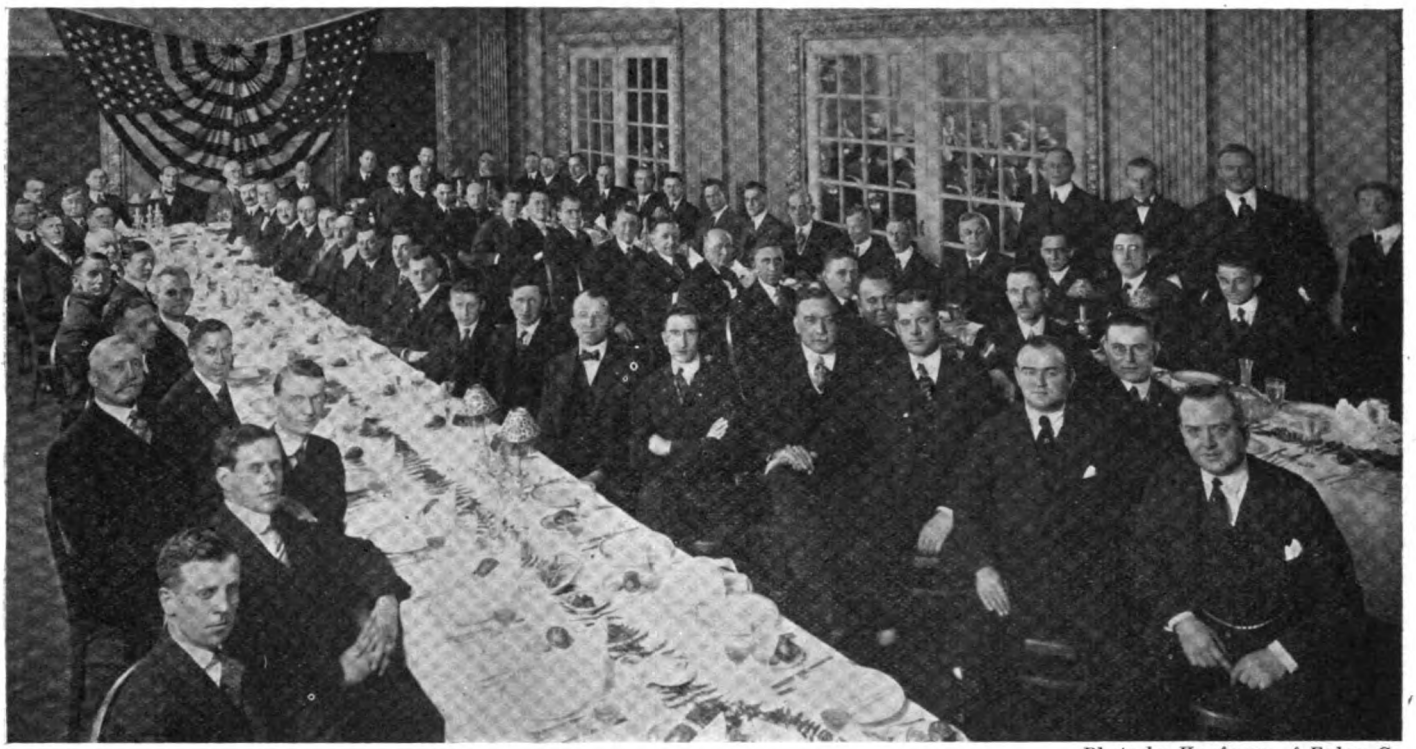


Photo by Kaufmann & Fabry Co.

of the story are told on page 5.

It was reported that with Cleveland, Minneapolis and Kansas City employing one decorator, E. W. Campbell, of Boston, the three shows are saving about $15,000. This work is to be extended next year and other co-operative plans are to be worked out.

The officers were re-elected as follows: President, E. E. Peake, Kansas City; vice-president, Bart J. Ruddle, Milwaukee; secretary-treasurer, Ray W. Sherman, Motor World, New York.

Harry Newman Stages a Play

CHICAGO, Feb. 1—The old-style and the modern successful dealer were shown dramatically last evening at the dinner of the Maxwell-Chalmers organization at the Congress Hotel.

The portrayal was by means of a playlet called "Speed," written and played by members of the Harry Newman-Stratton organization, which handles the Maxwell and Chalmers in this section.

N. O. Pep was the old-time dealer, a blacksmith, and Physical Salesman was the factory man who sold agencies by bunk and force. Full O' Pep, the son, finally revised the business, took on two good agencies—guess which ones—set up



Photo by Kaufmann & Fabry Co.

A bunch of Franklin representatives who came together to swap experiences and spread optimism

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Oldsmobile Dealers Who Gathered During the Show

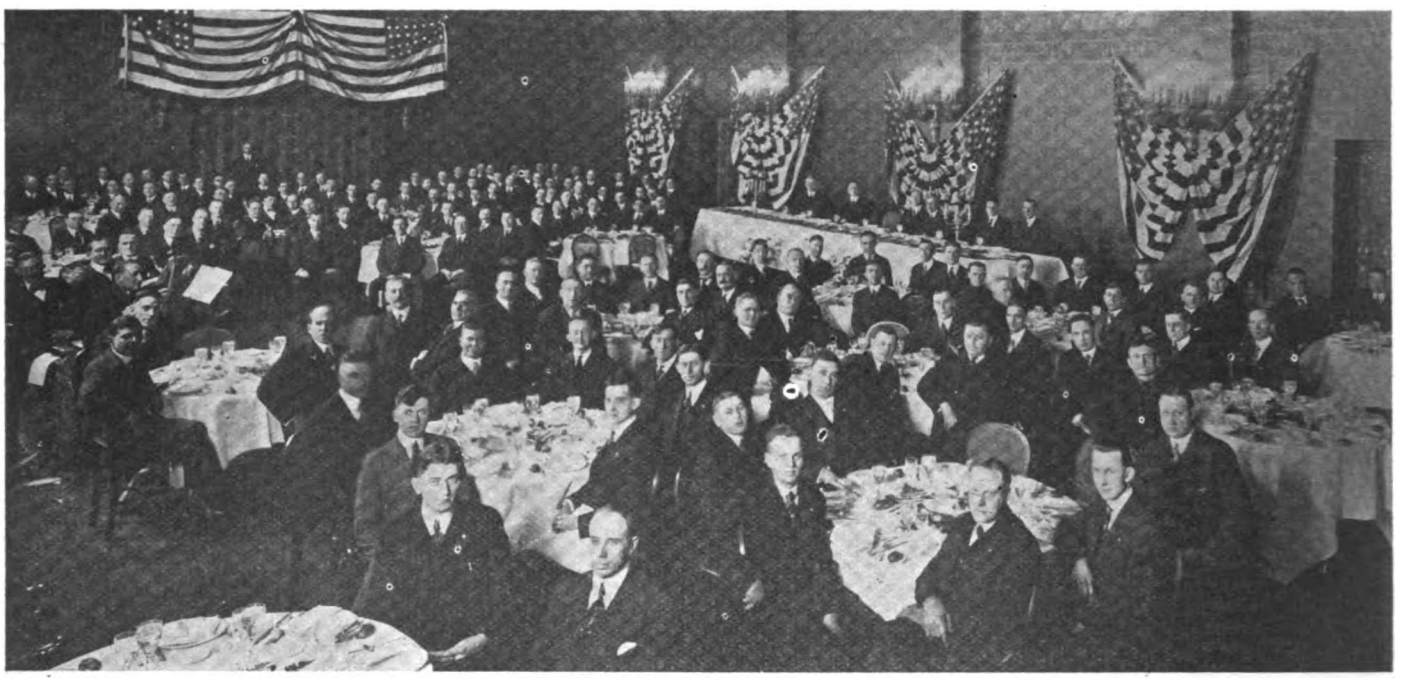


Photo by Kaufmann & Fabry Co.

a real salesroom, engaged Energy, Harmony, Truth and Loyalty, who threw out Laziness, Jealousy, Promises and Disloyalty, and married dad to Miss Efficiency, while the boy hooked up with Miss Intelligent Speed.

Ignorance and Failure were banished early in the play. Nut, Bolt, Wrench and Gear looked their parts. They did not appear in the finale. It was funny and got the idea across.

Fuel Greatest Problem, Says Kettering

CHICAGO, Feb. 2—The war dinner of the Society of Automotive Engineers held last night in connection with the tractor session takes first rank as one of the most notable ever held by the organization. The attendance exceeded 1200. President Kettering said, in part:

"Of all the problems we have to contend with to-day, the fuel problem is the biggest. There is nothing moved on this earth to-day except what is done with the sun's energy. This has been stored up in all forms in the earth and we have used it lavishly. Have we overdrawn our account? To-day there is arising a question. Can we go ahead? Must we curtail? It is the greatest question

(*Continued on page* 14)

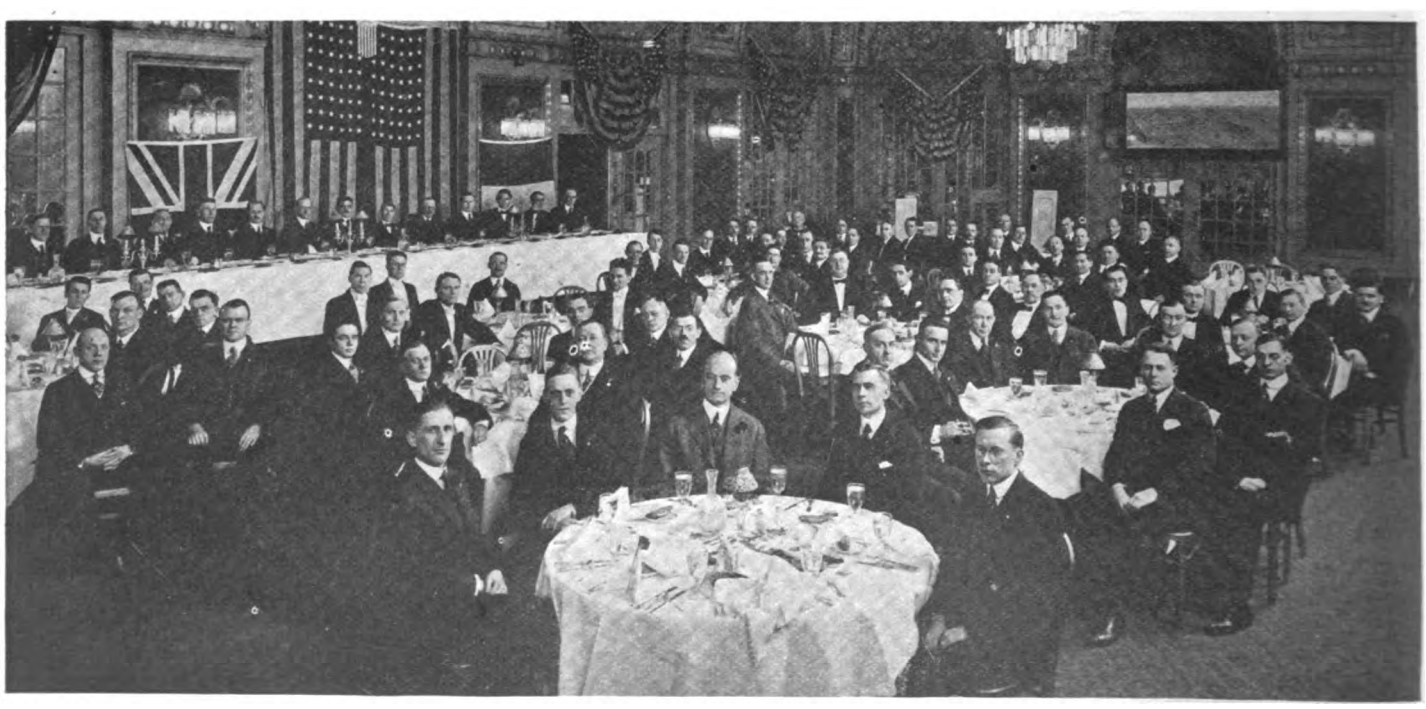


Photo by Kaufmann & Fabry Co.

Second annual banquet given to parts makers by the Elgin Motor Car Corp.

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Your Sales Arguments

1918	*1917*
1—Efficiency	1—Appearance
2—Spend, not hoard	2—Comfort
3—Buy wisely.	3—Performance
a—Appearance	4—Price
b—Comfort	5—Service
c—Performance	
d—Price	
e—Service	

By Ray W. Sherman

"GEE, but these prospects are getting to be tough nuts!" exclaimed George Baxter, one of the younger salesmen for Cornelius J. Reilly, Inc., as he threw his hat down on his desk, and flopped into a chair.

"Yes?" said Reilly, who had gone through 1917 with a successful Sennett year and who hoped to put a lot more of them into Callawassa in 1918.

"Y-a-a-s," drawled George, "they have more reasons why they should not buy a car than I can think of to the contrary. And when they get to going on this patriotic save-money stuff they sort of get me floored. I begin to lose the minute they start it."

"Guess we'll have to revise our sales story," suggested Tommy Trumbull, sales manager for Reilly.

"Mighty good idea," exclaimed Reilly. "We should have gone at it systematically long ago. Things have sort of revised themselves so far as selling is concerned, but we never have gone at this sales story thing in a real way. What's the use of telling a sales story and then have a man upset it when you get all through? What we ought to do is upset him before we start and then stick the sales story into him. As long as he has the last wallop in his hand what chance have we?"

"None!" agreed Tommy.

"Well, then," replied Reilly, "let's go at it. We'll have a sales meeting on the subject to-morrow morning. We'll get the story in shape this afternoon and shoot it the first thing in the morning when all the boys are here.

"Now"—and Reilly drew over his old familiar and useful scratch pad—"let's see. We used to sell something like this: First, appearance; next, comfort; next, performance; next, price; and finally, service—and darned little said about it. We're selling car performance and value, not giving away service.

"But now what has happened to our sales story. The man in his own heart still likes appearance, comfort, performance and all the other things, but he is living in changed times; he has changed his habits of living and he has acquired a few false ideas about what he should and should not do.

"One of the things he has gotten into his head is that he shouldn't spend money for anything except boots and shoes and Irish potatoes, and that's what we've got to do before we can sell him a car. We tell our 1917 sales story and after we get all through he trots out his pseudo patriotism and falls back on that.

"What we must do is this: We must show him why it is the right thing to do to buy a car if a car will be useful to him. Therefore let us set down as the first sales point of our 1918 story the word 'efficiency.'

"We point out that in these times our whole nation must be more efficient, every man and every business. We must cover the ground in faster time, we must utilize every minute of the day, we must keep ourselves in good health, we must keep our brains clear and our hearts strong. If we can save fifteen minutes in the morning by going to work in a car that is what we should do. If we can get out in a car on a Sunday and put some red blood into our veins it is unpatriotic not to do it.

"If we are running a business and cars will save time for our salesmen and take some of the load off the railroads and street cars it is up to us to do our bit in speeding up the men and relieving the railroads. There is no business efficiency in paying a salesman money for riding on the street cars if a car will help him cover the distance faster.

"Furthermore, unless a person, especially one's wife and kids, get the right sort of recreation, they become gloomy under the cloud of war. If the whole nation came under this cloud we would lose the war. The cloud of gloom is telling on Germany right now. Let's make it gloomier over there by making it brighter over here. Our boys will fight better.

"Then, let us say for No. 2, 'spend, not hoard.' No man must get the idea that money in a sock is worth a damn to the country. The only money that will help win the war is that which amasses wealth by flowing through the channels of trade. If the man stops buying cars there are 600 men with families at the Sennett plant who will be out of jobs and the town isn't big enough to provide work for them. The factory is now doing all the war work it can get and will have to shut down the part that employs these 600 men if the cars can't be sold.

"The same thing applies to every so-called luxury industry. All business keeps money flowing. How can our 600 men buy food and clothing, let alone pay for the Liberty Bonds they have subscribed for, unless they can have work? They can't move somewhere else, and if they could there is no place to go.

"And then there is, third, this: 'Spend wisely.' By that I mean, don't waste. Get value for your money. Buy legitimate goods. When you spend a dollar make sure it is a dollar's worth you get. And how can the prospect make sure he is spending wisely? By buying our car, of course. But why is our car a wise buy? At this point we tell him the old 1917 sales story and when we get through he hasn't anything to say—or, at least, not as much as before.

"As in all sales work, we must first sweep doubts, objections and arguments from the man's mind before we try to sell him. Right now his doubts are based upon his desire to be patriotic and his failure to understand what real patriotism is. So, we hitch a new 1918 beginning onto our old sales story and go merrily on sending the shekels into the pay envelopes at Sayanna and buying clothes for that new baby down at Georgie Baxter's. Eh, George?"

But George only grinned.

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Fuel Greatest Problem

(*Continued from page* 12)

which confronts us and yet we are not giving it proper consideration.

"If we had spent from $500,000 to $1,000,000 a year for the past few years in experimenting with fuel, we would have no fuel problem on our hands to-day. We have got to be so organized that we can run this winter on last summer's sunshine.

"We have had the Stone Age and the Iron Age, but the next 700 years will be the Agricultural Age. In this connection it is well to consider what an inefficient machine the horse is from a power standpoint. We have to-day 25,000,000 hp. from horses. To secure this we have to raise grain on 125,000,000 acres. All of this is nothing more than so much fuel for the horse motor.

"It is quite certain that if we applied ourselves to the problem we could get back a far better return in power from that acreage. But instead the government makes it impossible for us to do so by putting a tax of $1 a gallon on the fuel which we could make from the grain, because some poor degenerate persons may drink some of the stuff and kill themselves. I am not stating that alcohol is the eventual fuel, but it is certainly a starting point.

"This country's greatest asset is its ability to turn out large quantities of high grade products. It is this asset which is going to be of the greatest importance to us in winning the war, and yet the Government ties our hands sometimes on this very asset. I have seen bayonets rejected because they were .003 in. too narrow in the blade. What difference does it make when you are sticking a German with a bayonet if the blade is .003 in. too narrow? I have seen truck wheels rejected because the holes in the wheels were .0005 in. too large.

"If there is one message we ought to carry to the government it is to study the practical conditions under which the product must operate and then let us alone to do those things which we know so well how to do. If it will do the work, pass it and do not be guided by what some high-minded technician wants.

"Criticism given to-day should be constructive, not fault finding. I have heard people say, 'Isn't it true that the Liberty engine is the heaviest airplane engine ever built in this country?' Nowhere in the world is there another engine developing 400 hp. that only weighs 875 lb.

"Up to a year ago we only built 150 airplanes a year and we could get all the material we wanted. Now that we are building great quantities it is harder to get the materials and yet we are sending abroad planes to-day that are better than any which have ever flown.

"Germany prepared for this war in every way. You do not mind fighting a man fairly. But when he holds up his hands in the air and says, 'I am unprepared,' and then the next minute grabs a gun and starts shooting, he is not playing the game fairly, so it is just as well not to pay too much attention to these stories of strikes that are coming out of Germany just now."

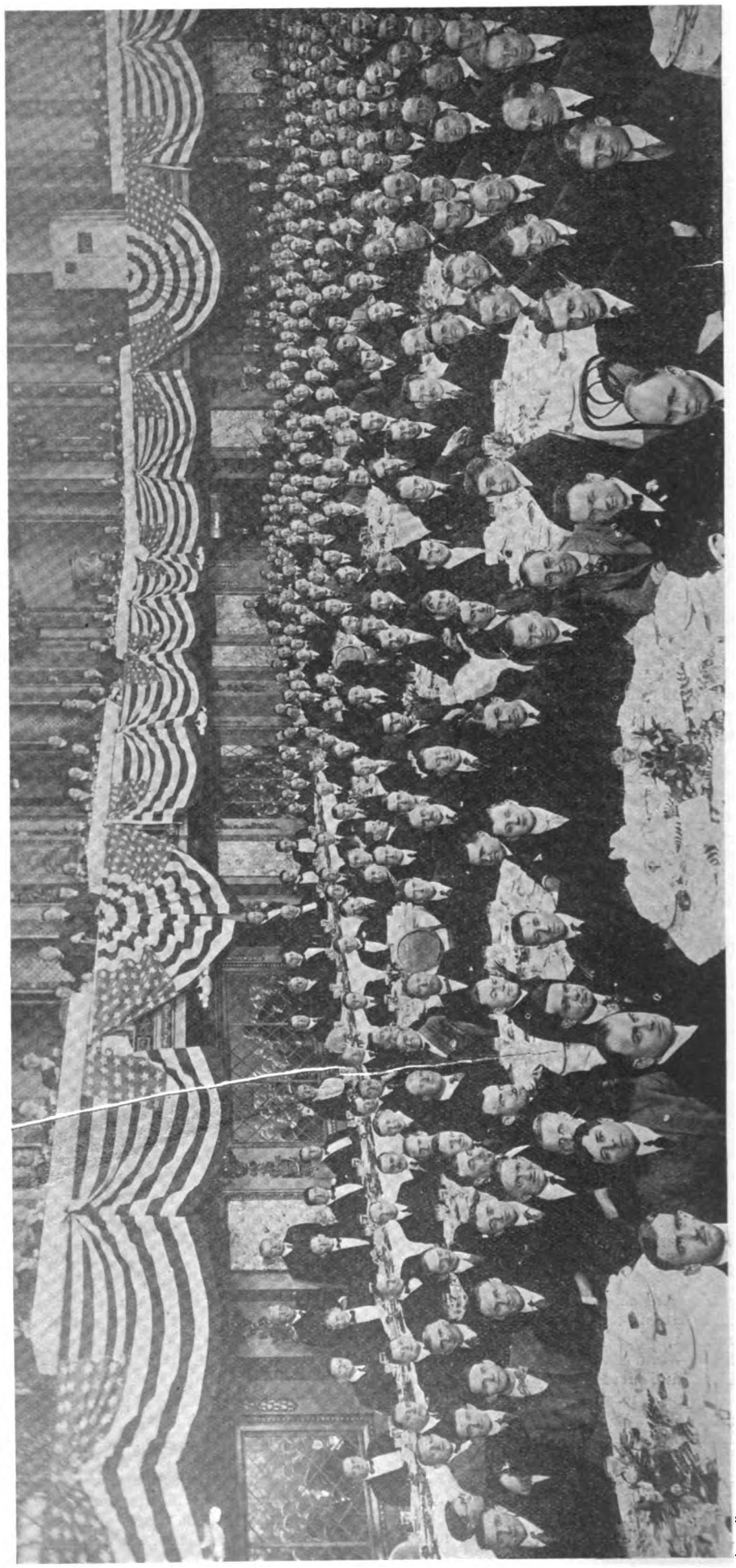


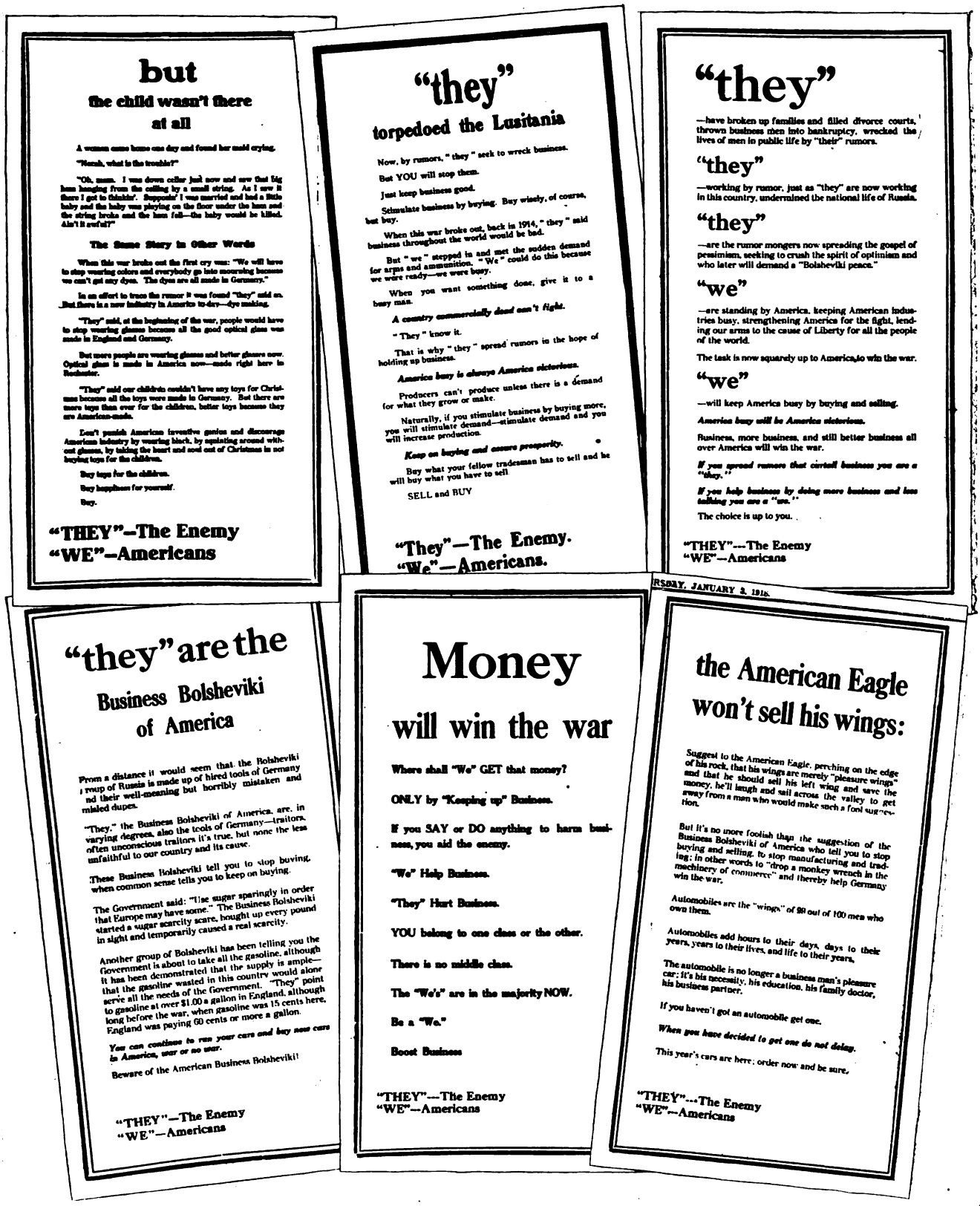
Photo by Kaufmann & Fabry Co.

These are Maxwell representatives, brought together during the show at Chicago

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How Rochester Dealers Are

Putting Their Cars Across



HERE is the way the wideawake dealers in Rochester, N. Y., are starting a co-operative advertising campaign. They are also proving their sturdy Americanism—and the essential character of the American motor car and truck.

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Passenger Cars

MOTOR WORLD GUIDE

Passenger Cars

This table appears in the first issue every month. It is corrected every month and brought up to date.

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION System	LUBRICATION Type of Pump	ELECTRIC SYSTEM Make	ELECTRIC SYSTEM Voltage	IGNITION Make	IGNITION Plug	CARBURETION Make of Carbureter	CARBURETION Fuel Feed	Clutch Type	TRANSMISSION GEARSET Location	TRANSMISSION GEARSET Forward Speeds	TRANSMISSION GEARSET Make	TRANSMISSION Final Drive	TRANSMISSION Car Drives Through	TRANSMISSION Rear Axle Type	TRANSMISSION Make of Rear Axle	TRANSMISSION Torque Taken By	RUNNING GEAR Wheelbase	RUNNING GEAR Tires	RUNNING GEAR Rims	RUNNING GEAR Wheels	RUNNING GEAR Rear Springs	Make of Speedometer	Number Crankshaft Bearings	BEARINGS Gearset	BEARINGS Rear Axle	BEARINGS Front Wheel
Abbott	$1595	6	3½x5½	20.4	303.1	4.30–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Remy	7/8	Remy	6	Stmbg.	V.	D.	Unit M.	3	Muncie	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	122	34x4	SS.	Wd.	S-E.	Stewart.	3	B.	BR.	R.
Allen	1095	4	3½x5	22.5	220.9	4.25–1	Own	L.	H.	T.	Cir-Sp.	P.	A-Lite-2.	6	Conn	7/8	Stmbg.	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	F.	Adams	Springs.	112	32x3½	SS.	Wd.	S-E.	Stewart.	2	BR	B.	R.
American B	1375	6	3½x5	23.4	230.1	4.42–1	Rutnbr.	L.	H.	P.	Sp-Pr.	P.	G&D-2.	6	G&D	7/8	Zenith	V.	P.	Unit M.	3	Mech	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	122	32x4	SS.	Wd.	S-E.	VanS	3	BP.	BR.	B.
Anderson 20	1435	6	3½x4½	25.3	224.0	4.58–1	Cont.	L.	H.	P.	Sp-Pr.	P.	West-2.	6	Conn	7/8	Zenith	V.	P.	Unit M.	3	Drstn	Sp.B.	Springs.	¾-F.	Clumba	Springs.	120	33x4	SS.	Wd.	S-E.	Stewart.	3	B.	R.	B.
Anderson–De Luxe		6	3½x5½	29.4	303.1		Cont.																															
Apperson 6–18	2200	6	3½x5	29.4	288.6	4.25–1	Own	L.	H.	P.	Sp-Pr.	P.	Bijur-2.	6	Remy	7/8	Rayfld	V.	P.	Amid	3	Own	Sp.B.	Springs.	SF.	Own	Springs.	130	35x4½	SS.	Wd.	¾ Ell.	VanS	4	R.	R.	P.
Apperson 8–18	2550	8	3½x5	33.8	331.8	4.25–1	Own	L.	H.	T.	Sp-Pr.	P.	Bijur-2.	6	Remy	7/8	Johnson	V.	P.	Amid	3	Own	Sp.B.	Springs.	SF.	Own	Springs.	130	35x4½	SS.	Wd.	¾ Ell.	Van S	3	B.	R.	R.
Auburn 6–39	1345	6	3½x4½	25.3	224.0	4.42–1	T-Hart.	L.	H.	P.	Sp-Pr.	P.	Remy-2.	6	Remy	7/8	Rayfld	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	¾ F.		Tor.A.	120	34x4	SS.	Wd.	S-E.	Stewart.	3	B.	R.	B.
Auburn 6–44	1685	6	3½x5½	29.4	303.1	4.08–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Remy-2.	6	Remy	7/8	Rayfld	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	F.		Tor.A.	131	35x4½	SS.	Wd.	Cant.	Stewart.	3	B.	R.	B.
Austin	3750	12	2⅞x5	39.7	389.5	3.75–1	Widly.	I.	H.	P.	Pr.	G.	Delco-2.	6	Delco	7/8	Stmbg.	V.	D.	Unit M.	3	Muncie	Sp.B.	Springs.	F.	Own	Springs.	142	34x4½	QD.	Wd.	DCant	Stewart.	3	B.	BR.	R.
Bell 18	995 1145	4	3¾x4½ 3¾x5	22.5	187.7 220.9		Lycmg	L.	H.	T.	Cir-Sp.	P.	Dynto-2.	6	A.Kent.	7/8	Zenith	V.	D.	Unit M.	3	Covert	Bevl	Springs.	¾ F.	Adams	Springs.	112	32x3½		Wd.	¾ Ell	Stewart.	2	R.	R.	B.
Biddle H	2650	4	3½x5½	22.5	226.4	4.40–1	Buda	L.	H.	T.	Cir-Sp.	G.	G&D-2.	6	Eisnn	7/8	Zenith	V.	P.	Unit M.	4	Own	Sp.B.	Springs.	F.	Own	Springs.	121	32x4	QD.	Wr.	S-E.	Warner.	3	BR	B.	B.
Bour–Davis 18A	1680	4	3½x5	22.5	220.0	4.00–1	Cont.	I.	H.	P.	Cir-Sp.	G.	West.	6	West	7/8	Miller	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	118	32x4	QD.	Wd.	S-E.	VanS	3	B.	R.	B.
Bour–Davis 18B	1785	6	3½x5½	29.4	303.0	4.07–1	Cont.	L.	H.	P.	Cir-Sp.	P.	West.	6	West	7/8	Stmbg.	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	118	33x4	QD.	Wd.	S-E.	VanS	3	B.	R.	B.
Brewster Chassis	7200	4	4 x5½	25.6	276.0	4.50–1	Own	K.	C.	P.	Pr.	G.	U.S.L.	12	Bosch	7/8	Zenith	V.	C.	Unit T	3	Own	Sp.B.	Tor.T.	F.	Own	Tor.T.	125	34x4	SS.	Wd.	Cant.	Stewart.	3	B.	R.	R.
Briscoe B–4–24	725	4	3 7/16x5½	16.3	163.0	4.25–1	Own	L.	H.	T.	Cir-Sp.	P.	A-Lite.	6	Conn	7/8	Buick	G.	C.	Unit X	3	Own	Bevl	Tor.A.	S-F	Own	Tor.A.	104	30x3	C.	Wd.	Ell.	Stewart.	2	Brp.	BR.	B.
Buick E–4–34, E–4–35	795	4	3¾x4½	18.2	170.0	4.08–1	Own	I.	H.	P.	Cir-Sp.	G.	Delco-1.	6	Delco	7/8	Marvel.	V.	C.	Amid	3	Own	Bevl	Springs.	¾ F.	West-M	Springs.	106	31x4	C.	Wd.	S-E.	Stewart.	3	B.	R.	B.
Buick E–4–37	1185																																					
Buick E–6–44–45	1265	6	3¾x4½	27.3	242.0	4.08–1	Own	I.	H.	P.	Cir-Sp.	G.	Delco	6	Delco	7/8	Marvel.	V.	D.	Amid	3	Own	Sp.B.	Tor.	F.	West-M	Tor.T.	118	34x4	SS.	Wd.	Cant.	Stewart.	4	B.	R.	R.
Buick E–6–46	1695																																					
Buick E–6–47	1845																																					
Buick E–6–49	1495	6	3¾x4½	27.3	242.0	4.61–1	Own	I.	H.	P.	Cir-Sp.	G.	Delco	6	Delco	7/8	Marvel.	V.	D.	Amid	3	Own	Sp.B.	Tor.	F.	West-M	Tor.T.	124	34x4½	SS.	Wd.	Cant.	Stewart.	4	B.	R.	R.
Buick E–6–50	2175																																					
Cadillac 57	2805	8	3½x5½	31.2	314.0	4.43–1	Own	L.	C.	P.	Pr.	G.	Delco-1.	6	Delco	7/8	Own	P.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Timken	Tor.T.	125 132	35x5 34x4½	SS.	Wd.	Plat.		3	Brp.	R.	R.
Case U	1875	6	3½x5½	29.4	303.0	4.45–1	Cont.	L.	H.	P.	Sp-Pr.	P.	West.	6	West	7/8	Rayfld	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	¾-F.	Clumba	Springs.	125	35x4½	SS.	Wd.	S-E.	Stewart.	3	B.	R.	R.
Chalmers 6–30	1365	6	3¼x4½	25.3	224.0	4 75–1 5.09–1	Own	L.	C.	T.	Sp-Pr.	G.	West-2.	6	Remy	7/8	Stmbg.	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	S-F.	Timken	Springs.	117 122	32x4 34x4	SS.	Wd.	S-E.	Stewart.	3	R.	R.	R.
Chandler 25	1595	6	3½x5	29.4	289.0	4.40–1	Own	L.	C.	P.	Sp-Pr.	P.	West.	6	Bosch	7/8	Rayfld	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	F.	Own	Tor.T.	123	34x4	SS.	Wd.	S-E.	Stewart.	3	B.	B.	R.
Chevrolet 490	685	4	3½x4	21.7	171.0	3.65–1	Own	I.	H.	T.	Sp-Pr.	G.	A-Lite-2.	6	Remy	7/8	Zenith	G.	C.	Amid	3	Own	Bevl	Springs.	¾ F.	Own	Springs.	102	30x3½	C.	Wd.	Cant.	Stewart.	3	BP.	R.	C&C
Chevrolet FA2	935	4	3½x5½	21.7	224.0	4.25–1	Own	I.	H.	T.	Sp-Pr.	G.	A-Lite-2.	6	Remy	7/8	Zenith	V.	C.	Amid	3	Own	Bevl	Springs.	¾ F.	Own	Springs.	108	33x4	SS.	Wd.	Cant.	Stewart.	3	BP.	R.	C&C
Chevrolet D4 & D5	1385	8	3½x4	36.4	286.9	4.25–1	Own	I.	H.	P.	Sp-Pr.	G.	A-Lite-2.	6	Remy	7/8	Zenith	V.	C.	Amid	3	Own	Bevel	Springs.	¾ F.	Own	Tor.T.	120	34x4	SS.	Wd.	Cant.	Stewart.	3	BP.	R.	C&C
Cole 870	1995	8	3½x4½	39.2	346.4	4.45–1	North.	L.	H.	G	Pr.	G.	Delco-2.	6	Delco	7/8	Stmbg.	V.	C.	Unit M.	3	North.	Sp.B.	Springs.	F.	Clumba	Springs.	127	35x4½	SS.	Wd.	S-E.	Warner.	3	B.	R.	R.
Columbia C & D	1350	6	3½x4½	25.3	224	4.75–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Remy.	6	A.Kent.	7/8	Stmbg.	V.	P.	Unit M.	3	Warner.	Sp.B.	Springs.	¾ F.	Timken.	Tor.T.	115	32x4	SS.	Opt.	Cant.	Stewart.	3	B.	R.	R.
Comet C–50	1285	6	3½x5	29.4	289.0	4.50–1	Lewis.	L.	H.	P.	Sp-Pr.	P.	Dynto.	6	Delco		Miller	V.	D.	Unit M.	3	Mech	Sp.B.	Springs.	¾ F.	W-Weiss	Tor-T.	125	33x4		Opt.	Cant.	Stewart.	3	B.	R.	B.
Commonwealth 4–40	995	4	3½x5	19.6	192.0	4.00–1	Lycmg.	L.	H.	T.	Cir-Sp.	P.	Dynto-2.	6	A.Kent.	7/8	Carter	V.	D.	Unit M.	3	Mech	Sp.B.	Springs.	F.	Peru	Springs.	112	32x3	SS.	Opt.	¾ Ell.	VanS	2	B.	BR.	B.
Crawford 6–40	2250	6	3½x5½	29.4	303.0	4.08–1	Cont.	L.	H.	P.	Cir-Sp.	P.	West-2.		Bosch	7/8	Stmbg.	V.	P.	Unit M.	3	Own	Sp.B.		¾ F.	Timken.	Springs.	122½	32x4		Wd.	S-E.	Stewart.	3	R.	R.	R.
Crow–Elkhart CE–36	935 995	4	3½x5	19.6	192.0	4.25–1	Own	I.	H.	T.	Cir-Sp.	G.	Dynto-2.	6	Conn	7/8	Zenith	V.	P.	Unit M.	3	Own	Bevl	Tor.T.	F.	Peru	Springs.	115	32x3½	SS.	Opt.	S-E.	Stewart.	3	B.	R.	R.
Cunningham V	4250 4750	8	3½x5	45.0	442.0	3.08–1 4.08–1	Own	L.	H.	P.	Pr.	G	West-2.	6	Delco	7/8	Stmbg.	V.	D.	Unit M.	3	B-Lipe	Sp.B.	Springs.	F.	Timken.	Tor.T.	132 142	37x5 37x5	Opt.	Opt.	.½ Ell.	Warner.	3	Brp.	R.	R.
Daniels B		8	3½x5	33.8	332.0	4.45–1	Her-Sp.	L.	H.	P.	Pr.	G	West-2.	6	West	7/8	Zenith	V.	D.	Unit M.	3	B-Lipe	Sp.B.	Springs.	¾ F.	Timken.	Tor.T.	127	34x4½	QDR	Wd.	S-E.	Warner.	3	BR	R.	R.
Davis H, I & K	1485	6	3½x4½	25.3	224 0	4.58–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Delco-2.	6	Del.o	7/8	Stmbg.	V.	C.	Unit M.	3	Warner.	Sp.B.	Springs.	¾ F.	Clumba	Springs.	119	34x4		Wd.	S-E.	Stewart.	3	BP.	R.	B.
Davis J & I	1785	6	3½x5½	29.4	303.0	4.42–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Delco-2.	6	Del.o	7/8	Stmbg.	V.	C.	Unit M.	3	Warner.	Sp.B.	Springs.	F.	Clumba	Springs.	125	34x4½		Wd.	S-E.	Stewart.	3	BP.	R.	R.
Dispatch	1250	4	3½x5	22.5	220.9	4.12–1	Wis.	L.	H.	T.	Pr.	G.	USL.-1.	12	Del.o	½	Rayfld	V.	CU	Amid	4	Own	Int.C.	Rad.Rd.	D.	Own	Springs.	120	36x3½	QD.	Wd.	Ell.	Corbin	3	B.	B.	B.
Dixie Flyer LS–35	995	4	3½x5	16.9	165.9	4.75–1	Lycmg.	L.	H.	T.	Cir-Sp.		Dynto-2.	6	Conn	7/8	Carter	V.	D.	Unit M.	3	G-Lees	Sp.B.	Tor.T.	F.	Peru	Tor.T.	112	32x3	SS.	Wd.	¾ Ell.	VanS	2	Brp.	B.d.	B.
Doble–Detroit D	3750	2	5 x4	20.0	314.0	1.25–1	Own			P.	Sp-Pr.	P.	Wagnr-2	12	Doble	7/8		P.				S.		Springs.	S-F.	Americ'n	Tor.A.	135	35x5		Wd.	S-E.	Waltham	2	B.	B.	B.
Dodge	885	4	3¾x4½	24.0	212.3	4.17–1 3.62–1	Own	L.	H.	P.	Cir-Sp.	G.	n-East-1	12	Delco	7/8	Stewart.	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Own	Tor.T.	114	32x3½	SS.	Opt.	¾ Ell.	J-M	3	RP.	R.	R.
Dorris 1–C–6		6	4 x5	38.4	377.0	3.50–1	Own	I.	H.	P.	Pr.	G.	West-2.	6	Bosch	7/8	Stmbg.	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Timken.	Tor.T.	130	36x4½	SS.	Wd.	Plat.	Warner.	7	R.	R.	R.
Dort 11	865	4	3½x5	19.6	192.0	4.00–1	Own	L.	H.	T.	Cir-Sp.	P.	West-2.	6	Conn	7/8	Carter	G.	C.	Unit M.	3	Mech	Bevl	Springs.	¾ F.	W-Weiss	Tor.T.	105	30x3½	QD.	Opt.	.Cant.	Stewart.	2	BP.	RP.	B.
Elcar DF	845	4	3½x5	19.6	192.4		Lycmg.	L.	H.	T.	Cir-Sp.	P.	Dynto-2.	6	A.Kent.	7/8	Carter	V.	D.	Unit M.	3	Mech	Sp.B.	Springs.	F.	Salsbry.	Springs.	116	32x3½	SS.	Wd.	S-E.	Stewart.	2	B.	R.	R.
Elcar		4	3½x4½	25.3	224.0	4.50–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Dynto.	6	A.Kent.	7/8	Stmbg.	V.	P.	Unit M.	3	Muncie	Sp.B.	Springs.	F.	Salsbry.	Springs.		33x4	S3.	Wd.	S-E.	Stewart.	3	B.	R.	R.
Elgin A	1095	6	3½x4½	23.4	196.2	4.45–1	Falls.	I.	H.	T.	Cir-Sp.	P.	Wagnr-2	6	Wagnr	7/8	Stmbg.	V.	P.	Unit M.	3	Mechs	Sp.B.	Springs.	¾ F.	Adams	Tor.A.	117	32x4		Wd.	Cant.	VanS	3	BP.	B.	R.
Empire 50–51	1125	4	3½x5	24.0	235.8	4.33–1	T-Hart.	T.	H.	P.	Cir-Sp.		A-Lite-2.	6	Conn	7/8	Stmbg.	V.	P.	Unit M.	3	Mechs	Bevl	Springs.	¾ F.	Peru	Tor.T.	115	33x4	SS.	Opt.	S-E.	Stewart.	3	BP.	BR.	B.
Empire 70A–71–73	1345	6	3½x4½	25.3	224.0	4.58–1	Cont.	L.	H.	P.	Sp-Pr.	P.	A-Lite-2.	6	Conn	7/8	Stmbg.	V.	P.	Unit M.	3	Mechs	Sp.B.	Springs.	F.	Hess	Springs.	120	34x4	SS.	Opt.	S-E.	Stewart.	3	BP.	BR.	B.

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PASSENGER CARS—Continued

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION System	LUBRICATION Type of Pump	ELECTRIC SYSTEM Make	ELECTRIC SYSTEM Voltage	IGNITION Make	IGNITION Plug	CARBURETION Make of Carbureter	CARBURETION Fuel Feed	Clutch Type	TRANSMISSION GEARSET Location	TRANSMISSION GEARSET Forward Speeds	TRANSMISSION GEARSET Make	TRANSMISSION Final Drive	TRANSMISSION Car Drives Through	TRANSMISSION Rear Axle Type	TRANSMISSION Make of Rear Axle	TRANSMISSION Torque Taken By	RUNNING GEAR Wheelbase	RUNNING GEAR Tire	RUNNING GEAR Rims	RUNNING GEAR Wheels	RUNNING GEAR Rear Springs	Make of Speedometer	BEARINGS Number Crankshaft Bearings	BEARINGS Gearset	BEARINGS Rear Axle	BEARINGS Front Wheel
Oakland 34-B	990	6	2 7/32 x 4 3/4	19.0	177.0	4.50–1	North...	I	H...	P.	Sp-Pr...	G.	Remy-2..	6	Remy...	7/8	Marvel..	V.	C..	Unit M..	3	Warner...	Bevel..	Springs..	F..	West.M.	Springs..	112	32x4	SS..	Wd.	S-E..	Stewart..	3	BP..	BR	B...
Oldsmobile 37	1185	6	2 7/32 x 4 3/4	19.0	177.0	4.58–1	North...	I.	H...	P.	Pr.....	G.	Remy-2..	6	Remy...	7/8	Johnsn.	V.	C..	Unit M..	3	North.....	Sp.B..	Springs..	F...	West.M.	Springs..	112	32x4	SS...	Wd.	S-E..	Stewart..	3	Brp.	BR	R...
Oldsmobile 45–A	1467	8	2 7/8 x 4 1/4	26.4	246.7	4.92–1	Own...	L.	H...	P.	Pr.....	G.	Delco-2..	6	Delco...	7/8	Ball....	V.	C..	Unit M..	3	Own.....	Sp.B..	Springs..	3/4 F..	Own....	Rad.Rd.	112	32x3 1/2	.....	Opt.	Trans.	Stewart..	2	BP..	BR	B...
Olympian	1085	4	3 1/2 x 4 1/2	16.9	149.3	4.75–1	Own...	I.	C...	T.	Pr.....	G.	Remy-2..	6	Remy...	.....	Stmbg...	V.	D..	Unit X..	3	Own.....	Bevel..	Tor.T...	1/4 F..	Own....	Tor.T...	106	31x4	C..	Wd.	Cant.	Stewart..	2	Brp.	BR	R...
Overland 90	795	4	3 1/2 x 5	18.2	178.9	4.00–1	Own...	L.	H...	T.	Cir-Sp..	P.	A-Lite-2..	6	Conn....	7/8	Tilltsn..	V.	C..	Unit X..	3	Own.....	Bevel..	Tor.T...	1/4 F..	Own....	Tor.T...	112	32x4	SS...	Wd.	Cant.	Stewart..	5	BR.	BR	R...
Overland 85–B–4	930	4	4 1/4 x 4 1/2	27.2	240.5	4.00–1	Own...	L.	H...	T.	Cir-Sp.	G.	A-Lite-2..	6	Conn....	7/8	Tilltsn..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	3/4 F..	Own....	Tor.T...	116	32x4	C..	Wd.	Cant.	Stewart..	3	BR.	BR	R...
Overland 85	1130	6	3 1/2 x 4 1/2	25.3	224.0	4.60–1	Cont....	L.	H...	P.	Sp-Fr..	P.	A-Lite...	6	Conn....	7/8	Tilltsn..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	3/4 F..	Own....	Tor.T...	100	30x3 1/2	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	4	2 1/4 x 4	8.0	15.8	.....	Own...	.....	.....	.....	.....	.....	A-Lite...	6	Conn....	.....	.....	.....	D..	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Owen Magnetic W-42	5300	6	4 x 5 1/2	38.4	414.7	4.00–1	Own...	I.	Sp-g	P.	Pr.....	G.	Own....	24	Bosch...	7/8	Zenith...	.....	Cm	Unit M..	....	Magnetic..	Sp.B..	Springs..	F...	Amer...	Springs..	142	35x5	SS...	Wr..	S-E..	Stewart..	3	.....	R...	R...
Owen Magnetic M–25	3300	6	3 1/2 x 5 1/2	29.4	303.1	4.08–1	Cont....	L.	H...	P.	Sp-Fr..	P.	Own....	14	Bosch...	7/8	Zenith...	V.	Cm	Unit M..	....	Magnetic..	Sp.B..	Springs..	1/2 F..	Timken..	Springs.	125	34x4 1/2	SS...	Wd.	S-E..	Warner..	3	.....	R...	R...
Owen Magnetic O–36	3950	6	3 1/2 x 5 1/2	33.6	339.7	3.50–1	Buda....	L.	H...	P.	Sp-Pr...	G.	Own....	28	Bosch...	7/8	Zenith...	V.	Cm	Unit M..	....	Magnetic..	Sp.B..	Springs.	F...	Amer...	Tor.T...	136	35x5	SS...	Wr..	S-E..	Warner..	4	.....	R...	R...
Packard {3–25 / 3–35}	3700 / 4100	12	3 x 5	43.2	424.1	4.36–1	Own...	L.	C...	P.	Pr.....	G.	Bijur-2..	6	Delco...	7/8	Own....	P.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.A...	128 / 136	35x5	QD..	Wd.	S-E..	Walthm.	3	BR.	B.	R...
Paige 6–39	1330	6	3 1/2 x 5	23.4	230.1	4.41–1	Rutnbr.	L.	H...	P.	Sp-Pr...	P.	G&D-2..	6	Remy...	7/8	Stmbg...	G.	P..	Unit M..	3	Own.....	Sp.B..	Tor.T...	3/4 F..	Salsbry..	Tor.T...	117	32x4	SS...	Wd.	Cant.	Stewart..	3	Brp.	BR	R...
Paige 6–55	1775	6	3 1/2 x 5 1/2	29.4	303.1	4.35–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2..	6	Remy...	7/8	Rayfld..	V.	P..	Unit M..	3	Own.....	Sp.B..	Springs..	1/2 F..	Salsbry..	Tor.T...	127	35x4 1/2	SS...	Wd.	Cant.	Stewart..	3	Brp.	BR	B...
Pan–American G–5	1500	6	3 1/2 x 5	23.4	230.0	4.45–1	Rutnbr.	L.	H...	P.	Sp-Pr...	P.	G&D.....	6	Bosch...	7/8	Rayfld..	V.	P..	Unit M..	3	Warner...	Sp.B..	Springs..	S-F.	Timken..	Springs.	120	33x4 1/2	SS...	Wd.	S-E..	Stewart..	3	B...	R...	R...
Pan–American J–7	.....	6	3 1/2 x 5 1/2	29.4	303.1	3.70–1	Cont....	L.	H...	P.	Sp-Pr...	P.	G&D.....	6	Bosch...	7/8	Rayfld..	V.	P..	Unit M..	3	Warner...	Sp.B..	Springs.	S-F.	Timken..	Springs.	128	34x5	.....	Wd.	S-E..	Stewart..	3	B...	R...	R...
Paterson 6–45	1295	6	3 1/4 x 4 1/2	25.4	224.0	4.50–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Delco...	6	Delco...	7/8 L	Stmbg...	V.	C..	Unit M..	3	Detroit...	Sp.B..	Springs.	F..	Hess....	Springs.	120	32x4	C..	Wd.	3/4 Ell.	Stewart..	3	P...	R...	B...
Peerless 56	2340	8	3 1/2 x 5	33.8	331.8	4.90–1	Own...	L.	H...	P.	Pr.....	G.	A-Lite-2..	6	A.Kent..	7/8	Ball....	V.	D..	Unit M..	3	B-Lipe....	Sp.B..	Springs.	S-F.	Timken..	Springs.	125	35x4 1/2	SS...	Wd.	Plat..	Warner..	3	BR	R...	R...
Pierce–Arrow C–4	4800	6	4 x 5 1/2	38.4	414.7	3.78–1	Own...	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	7/8	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	134	34x4 1/2	QD..	Wd.	3/4 Ell.	Warner..	7	B...	BR	R...
Pierce–Arrow B–4	5500	6	4 1/2 x 5 1/2	48.6	524.8	3.53–1	Own...	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	7/8	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	142	35x5	QD..	Wd.	3/4 Ell.	Warner..	7	B...	BR	R...
Pierce–Arrow A–4	6500	6	5 x 7	60.0	824.7	2.88–1	Own...	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	7/8	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	147 1/2	36x5 1/2	OD..	Wd.	3/4 Ell.	Warner..	7	B...	BR	R...
Pilot 6–45	1295	6	3 1/4 x 5	23.4	230.1	4.25–1	T-Hart..	L.	H...	P.	Sp-Pr...	P.	Delco-2..	6	Delco...	7/8	Tiltsn..	V.	P..	Unit M..	3	Muncie...	Sp.B..	Springs.	1/2 F..	Hess....	Tor.T...	119	32x4	SS...	Wd.	Cant.	Stewart..	3	BR	BR	R...
Premier 6–C	2285	6	3 1/2 x 5 1/2	27.3	295.3	4.45–1	Own...	I.	H...	P.	Sp-Pr...	G.	Delco-2..	6	Delco...	7/8	Johnson	V.	P..	Unit M..	3	Detroit...	Sp.B..	Springs.	S-F.	Timken..	Springs.	125 1/2	32x4 1/2	SS...	Wd.	S-E..	Warner..	3	BP..	R...	R...
Princess 36–F	875	4	3 1/4 x 4 1/4	22.5	187.7	4.25–1	G.B.&S.	L.	C...	T.	Cir-Sp...	P.	Disco-2..	6	Splitdrf..	7/8	Schblr...	V.	D..	Unit M..	3	G-Lees...	Sp.B..	Springs.	F...	Own....	Springs.	108	32x3 1/2	.....	Wd.	3/4 Ell.	VanS...	3	BR	BR	B...
Regal J	795	4	3 1/4 x 4 1/2	19.6	182.8	4.25–1	Own...	L.	H...	T.	Cir-Sp...	P.	A-Lite...	6	A.Kent..	1/2	Carter..	V.	C..	Unit M..	3	G-Lees....	Bevel..	Tor.T...	F..	Peru....	Tor.T...	108	30x3 1/2	QD..	Wd.	Cant.	Stewart..	3	B...	BR	B...
Reo T	1225	4	4 1/4 x 4 1/2	27.2	240.5	4.30–1	Own...	F.	H...	P.	Cir-Sp...	P.	Remy-2..	6	Remy...	1/2 L	Johnson	G.	D..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.A...	120	34x4	SS...	Wd.	3/4 Ell.	Stewart..	3	R...	R...	R...
Reo M	1550	6	3 7/8 x 5 5/8	30.4	306.6	4.30–1	Own...	F.	H...	P.	Cir-Sp...	P.	Remy-2..	6	Remy...	1/2 L	Rayfld..	V.	D..	Amid...	3	Own.....	Sp.B..	Springs.	F..	Own....	Tor.A...	126	34x4 1/2	SS...	Wd.	Cant.	Stewart..	3	R...	R...	R...
Roamer D–4–75	3250	4	4 x 6	25.6	301.6	3.77–1	Dusnbrg	H	H...	P.	Sp-Pr...	G.	Bijur....	6	Bosch...	7/8	Stmbg...	V.	P..	Unit M..	3	G-Lees...	Sp.B..	Springs.	3/4 F..	Hess....	Tor.T...	128	32x4	SS...	Wr..	S-E..	Stewart..	3	BR	B...	B...
Roamer C–6–54	2475	6	3 1/2 x 5 1/4	29.4	303.1	3.77–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Bijur....	6	Bosch...	7/8	Stmbg...	V.	P..	Unit M..	3	G-Lees...	Sp.B..	Springs.	3/4 F..	Hess....	Tor.T...	128	32x4	SS...	Wr..	S-E..	Stewart..	3	BR	B...	B...
Saxon B–5–R	445	4	2 3/4 x 4	12.1	95.0	5.00–1	Cont....	L.	H...	T.	Cir-Sp...	P.	Wagnr-2..	6	A.Kent..	7/8	Schblr...	G.	P..	Unit X..	3	Own.....	Sp.B..	Tor.T...	S-F.	Timken..	Tor.T...	96	30x3	DC..	Wd.	Cant.	Stndrd...	2	Brp.	BR	B...
Saxon S–4	935	6	2 3/4 x 4 1/2	19.8	175.3	4.75–1	Cont....	L.	H...	T.	Cir-Sp...	P.	Wagnr-2..	6	Remy...	7/8	Stmbg...	G.	P..	Unit X..	3	Own.....	Sp.B..	Tor.T...	S-F.	Timken..	Tor.T...	112	32x3 1/2	SS...	Opt.	Cant.	Stewart..	3	Brp.	R...	R...
Scripps–Booth Six–30	1195	6	2 1/2 x 4 1/4	19.0	177.0	.....	.....	.....	.....	.....	.....	.....	Remy...	6	Remy...	7/8	Marvel..	.....	C..	.....	3	.....	.....	.....	.....	.....	.....	112	32x4	SS...	.....	.....	.....	.....	.....	.....	.....	.....
Simplex V	7000	6	4 1/2 x 6 1/2	45.9	563.7	3.00–1	Own...	L.	C...	P.	Sp-Pr...	G.	Bosch-2..	12	Eismn..	7/8	Newcmb	P.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F..	Own....	Springs.	143 1/2	37x5	QD..	Opt.	S-E..	Stewart..	3	R...	BR	R...
Singer 17	3800	6	4 x 5 1/2	38.4	414.7	3.77–1	Her-Sp.	T.	H...	P.	Pr.....	G.	West-1..	6	Bosch...	7/8	Rayfld..	V.	D..	Unit M..	4	Muncie...	Sp.B..	Springs.	F..	Timken..	Tor.T...	139	35x5	QD..	Wr..	Cant.	Stewart..	3	B...	R...	R...
Singer G	2450	8	3 1/4 x 5	33.8	331.8	4.45–1	Her-Sp.	L.	H...	P.	Pr.....	G.	West-2..	6	Splitdrf..	7/8	Zenith...	V.	P..	Unit M..	3	G-Lees...	Sp.B..	Springs.	S-F.	Timken..	Springs.	127	34x4 1/2	.....	Wd.	S-E..	Stewart..	3	BR	R...	R...
Standard	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P.	.....	.....	.....	.....	Sp.G..	Rad.Rd	.....	Timken..	Frame...	130	35x4 1/2	SS...	.....	Ell...	Stewart..	.....	.....	.....	.....	.....
Stanley Steamer	2600	2	4 x 5	12.8	125.6	1.5 –1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stearns SKL4	2175	4	3 1/2 x 5 1/2	22.5	248.5	4.50–1	Own...	K	C...	P.	Sp-Pr...	G.	West-2..	12	Remy...	7/8	Schblr...	V.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.A...	119	34x4	SS...	Wd.	Cant.	Stewart..	3	BR	BR	R...
Stearns SK8	2575	8	3 1/2 x 5	33.8	331.8	4.75–1	Own...	K	C...	T.	Sp-Pr...	G.	West-2..	12	Remy...	7/8	Rayfld..	V.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.A...	125	35x4 1/2	SS...	Wd.	Cant.	Stewart..	3	BR	BR	R...
Stephens Salient Six	1485	6	3 1/4 x 4 1/2	25.3	224.0	4.75–1	Own...	I.	H...	T.	Pr.....	G.	Delco...	6	Delco...	1/2	Stmbg...	V.	P..	Unit M..	3	Mech....	Sp.B..	Springs.	F..	Hess....	Springs.	118	32x4	.....	Wd.	S-E..	VanS...	3	B...	R...	R...
Studebaker SH4–40	895	4	3 1/2 x 5	22.5	192.4	4.08–1	Own...	L.	H...	P.	Cir-Sp...	G.	Wagnr-2..	6	Remy...	1/2	Schblr...	V.	C..	Amid...	3	Own.....	Sp.B..	Rad.Rd	S-F.	Own....	Springs.	112	32x3 1/2	SS...	Wd.	S-E..	Warner..	3	RP.	R...	R...
Studebaker EG	1695	6	3 1/2 x 5	36.0	354.0	3.71–1	Own...	L.	H...	P.	Cir-Sp...	G.	Wagnr....	6	Remy...	7/8	Ball....	V.	C..	Amid...	3	Own.....	Sp.B..	Rad.Rd	S-F.	Own....	Springs.	126	33x4 1/2	SS...	Wd.	S-E..	Warner..	4	RP.	R...	R...
Studebaker EH6–50	1295	6	3 1/2 x 5	29.4	288.6	4.00–1	Own...	L.	H...	P.	Cir-Sp...	G.	Wagnr-2..	6	Remy...	1/2	Schblr...	V.	C..	Amid...	3	Own.....	Sp.B..	Rad.Rd	S-F.	Own....	Springs.	119	32x4	SS...	Wd.	S-E..	Warner..	4	RP.	R...	R...
Stutz S	2750	4	4 3/4 x 6	30.6	360.8	3.50–1	Own...	T.	H...	P.	Pr.....	G.	Remy-2..	6	Bosch...	7/8	Stmbg...	P.	C..	Unit X..	3	Own.....	Bevel..	Tor.T...	3/4 F..	Own....	Tor.T...	120	32x4 1/2	SS...	Wr..	S-E..	Stewart..	3	B...	R...	R...
Velie 38	1340	6	3 1/4 x 4 1/2	25.3	224.0	4.75–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2..	6	Remy...	7/8	Rayfld..	V.	P..	Unit M..	3	Durstn....	Sp.B..	Springs.	S-F.	Timken..	Springs.	115	32x4	SS...	Wd.	3/4 Ell.	Stewart..	3	B...	R...	R...
Velie 39	1595	6	3 1/2 x 5 1/2	29.4	303.1	4.45–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2..	6	Remy...	7/8	Rayfld..	V.	P..	Unit M..	4	Warner...	Sp.B..	Springs.	S-F.	Timken..	Springs.	124	33x4 1/2	SS...	Wd.	3/4 Ell.	VanS...	3	B...	R...	R...
Westcott S–18	1940	6	3 1/2 x 5 1/2	29.4	303.1	4.45–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Delco-2..	6	Delco...	7/8	Rayfld..	V.	D..	Unit M..	3	B-Lipe....	Sp.B..	Springs.	3/4 F..	Timken..	Tor.T...	125	35x4 1/2	SS...	Wd.	Cant.	Warner..	3	BR	R...	R...
White 16 Valve Four	5000	4	4 1/4 x 5 1/2	28.9	326.3	.....	Own...	T.	H...	P.	Pr.....	G.	Lee-N-2..	12	.....	7/8	Own....	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs.	137 1/2 / 124 1/2	35x5	U...	Wd.	S-E..	Stewart..	3	B...	B...	B...
Willys-Knight 88–4	1525	4	4 1/4 x 4 1/2	27.2	240.5	4.30–1	Own...	K	C...	T.	Sp-Pr...	P.	A-Lite-2..	6	Conn....	7/8	Tiltsn..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	F..	Own....	Tor.T...	121	34x4 1/2	SS...	Wd.	Cant.	Warner..	3	Brp.	R...	R...
Willys-Knight 88–8	2000	8	3 3/4 x 4	36.4	286.3	4.60–1	Own...	K	C...	T.	Pr.....	P.	A-Lite-2..	6	Remy...	7/8	Zenith...	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	F..	Own....	Tor.T...	125	34x4 1/2	SS...	Wd.	Cant.	Warner..	2	Brp.	R...	R...
Willys 89	1365	6	3 1/2 x 5 1/2	29.4	303.1	4.00–1	Cont....	L.	H...	P.	Sp-Pr...	P.	A-Lite-2..	6	Conn....	7/8	Tilltsn..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	1/2 F..	Own....	Tor.T...	120	33x4 1/2	SS...	Opt.	Cant.	Stewart..	3	Br..	BR	R...
Winton 33	2950	6	3 1/2 x 5 1/2	33.7	347.9	4.45–1	Own...	L.	C...	P.	Pr.....	P.	Bijur-2..	6	Bosch...	7/8	Rayfld..	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F..	Own....	Tor.R...	128	36x4 1/2	QD..	Wd.	3/4 Ell.	Warner..	4	BR	R...	R...
Winton 48	3500	6	4 1/2 x 5 1/2	48.6	524.8	4.08–1	Own...	L.	C...	P.	Pr.....	P.	Bijur-2..	6	Bosch...	7/8	Rayfld..	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F..	Own....	Tor.R...	128	36x4 1/2	QD..	Wd.	3/4 Ell.	Warner..	4	BR	R...	R...
Woods 54	2950	4	2 3/4 x 4	12.1	95.0	8.25–1	Cont....	L.	H...	T.	Sp-Pr...	P.	Own....	60	A.Kent..	7/8	Stmbg...	G.	M.	Unit M..	....	Electric...	Worm.	Springs.	S-F.	Own....	Tor.A...	124	35x4 1/2	QD..	Wd.	Cant.	Stewart..	3	.....	BR	R...

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Lamp Bulbs

MOTOR WORLD GUIDE

Lamp Bulbs

Car	HEAD LAMPS Volt	HEAD LAMPS Cp.	SIDE LAMPS Volt	SIDE LAMPS Cp.	TAIL LAMP Volt	TAIL LAMP Cp.	DASH LAMP Volt	DASH LAMP Cp.	Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks
Abbott-Detroit	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Allen	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S.	S.	Resist.	
American	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S.	S.	.....	Dash lamp double.
Anderson	6-8	21	6-8	12H	6-8	4	6-8	4	.....	E.S.	S.	.....	
Apperson	6-8	18	.....	.....	6-8	2	6-8	2	10	E.D.	D.	Resist.	
Auburn 39 B	6-8	15	6-8	4	6-8	2	6-8	2	25	E.S.	S.	.....	Dash Ediswan D.
Auburn 44	6-8	18	6-8	12	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Austin	6-8	24	6-8	4H	6-8	4	.....	....	.....	E.S.	S.	.....	
Bell	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	Dash Ediswan D.
Biddle	6-8	21	6-8	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Dash Ediswan D.
Brewster	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Dash Ediswan D.
Briscoe	6-8	21	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Resist.	Dash Ediswan D.
Bour Davis	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	.....	.....	
Buick	6-8	15	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	
Cadillac	6-8	18	6-8	6	3-4	2	3-4	2	C.B.	E.S.	S.	.....	
Case	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Chalmers	6-8	15	6-8	4H	6-8	2	6-8	2	{30 / 15}	.....	S.	.....	
Chandler	6-8	16	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Chevrolet	6-8	12	.....	.....	6-8	2	6-8	2	.....	E.D.	.....	.....	
	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.D.	.....	.....	
Cole	6-8	21	6-8	2H	3-4	2	3-4	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Columbia	6-8	15	6-8	4	6-8	2	6-8	2	None	E.S.	S.	.....	Dash Ediswan D.
Commonwealth	6-8	15	6-8	4H	6-8	4	6-8	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Crawford	6-8	15	6-8	4H	6-8	4	6-8	2	15	E.S.	S.	.....	Dash lamp Ediswan D.
Crow-Elkhart	6-8	15	6-8	4H	6-8	2	6-8	2	10	E.D.	S.	Series	Dash lamp Ediswan D.
Cunningham	6-8	15	6-8	4	6-8	4	6-8	4	15	E.S.	S.	Warner lens.	Tail lamp Ediswan S.
Daniels	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Davis	6-8	15	.....	.....	6-8	4	6-8	4	.....	E.D.	S.	Warner lens.	Dash lamp Ediswan D.
Dispatch	12-16	21	.....	.....	12-16	2	6-8	2	2	E.D.	D.	.....	Two dash lamps.
Dixie	6-8	15	.....	.....	3-4	2	3-4	2	10	E.D.	D.	Resist.	
Doble	12-16	32	.....	.....	6-8	2	6-8	2	None	E.D.	S.	Warner lens.	Dash and tail in Series
Dodge	12-16	15	.....	.....	12-16	2	12-16	2	.....	E.S.	S.	Resist.	
Dorris	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Dort	6-8	15	.....	.....	6-8	4	6-8	2	10	E.S.	S.	Resist.	Dash lamp Ediswan D.
Elgin	6-8	21	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Elcar	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	
Empire	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S.	S.	.....	Dash lamp Ediswan D.
Fiat	6-8	15	6-8	4H	6-8	2	6-8	4	.....	E.S.	.....	Warner lens.	Tonneau lamp 6 v. 2 cp.
Ford	6-8	15	.....	.....	.....	.....	.....	.....	.....	E.D.	.....	.....	
Franklin	12-16	21	12-16	4H	6-8	2	{6-8 / 12-16}	{2 / 2}	10	E.D.	.....	.....	Panel 12-16 v., 2 cp.
Glide	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	
Grant	6-8	15	6-8	4H	6-8	2	6-8	2	20	.....	S.	Resist.	Dash lamp Ediswan D.
HAL TWELVE	6-8	18	.....	.....	6-8	2	6-8	4	15	E.S.	.....	Warner lens.	H'dlamps doub., tail and dash single.
Halladay	6-8	15	6-8	4H	6-8	4	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Harroun	6	15	.....	.....	3	2	3	2	15	E.S.	S.	Resist.	Dash Ediswan D.
Haynes	6-8	15	6-8	12H	6-8	2	6-8	2	5	E.D.	D.	Series	
Hollier	6-8	15	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Series	
Hudson	6-8	15	.....	.....	3-4	2	3-4	2	.....	E.S.	S.	Resist.	Dash lamp Ediswan D.
Hupmobile	6-8	15	6-8	4	6-8	4	6-8	4	15	E.S.	S.	Resist.	
Inter-State	6-8	15	.....	.....	6-8	2	6-8	2	10	E.D.	S.	Resist.	
Jackson	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D.	S.	.....	
Jones	6-8	21	6-8	2	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Jordan	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
King	6-8	18	6-8	4H	6-8	2	6-8	2	10	E.S.	S.	Series	
Kissel	6-8	18	.....	.....	6-8	2	6-8	2	20	E.D.	S.	Series	Dash lamp single.
Kline	6-8	15	6-8	4	6-8	2	6-8	2	15	E.S.	S.	.....	Fuses 5 amp. in all but hdlps.
Lexington 6R	7	30	.....	.....	6	2	6	4	15	E.S.	S.	D. Bulb	Dash lamp Ediswan D.
	.....	32	.....	.....	.....	.....	.....	.....	5	.....	.....	Hdlamps	Spotlight, 7 v., 21 cp., double contact.
	7	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Liberty	6-8	15	.....	H	6-8	2	6-8	2	.....	E.S.	S.	.....	
Locomobile	6-8	21	6-8	6	6-8	4	6-8	2	10	E.S.	S.	Resist.	Tonneau & Spotlight 6-8v., 2 cp.
McFarlan	6-8	24	6-8	12H	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Madison	6-8	15	6-8	6H	6-8	4	6-8	4	5	E.S.	S.	Series	Dash lamp Ediswan D.
Maibohm A	12	18	12	4	6	2	6	2	None	E.S.	S.	Resist.	
B	6-8	18	6-8	4	6-8	2	3-4	2	15	E.S.	S.	Resist.	
Marmon	6-8	24	6-8	8H	6-8	4	6-8	4	20	E.S.	S.	Warner lens.	
Maxwell	12-16	24	12-16	.....	12-16	2	12-16	2	20	E.S.	S.	Resist.	
Mercer	12-16	24	12-16	4	12-16	4	12-16	4	10	E.S.	S.	Clear lens.	
Metz	6-8	15	6-8	4H	6-8	2	6-8	2	50	E.D.	S.	Shad. rays	
Mitchell	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D.	S.	Series	
Moline-Knight	6-8	15	6-8	6H	6-8	2	6-8	4	20	E.S.	S.	Deflect	
Monroe	6-8	15	6-8	2H	6-8	2	6-8	2	.....	E.S.	S.	.....	
Moon	6-8	15	.....	.....	6-8	2	6-8	4	C.B.	E.S.	.....	Warner lens.	Dash lamp Ediswan D.
Murray	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.D.	.....	Warner lens.	Dash and tail Ediswan S. Fuses 5 amp. in dimmer.
Nash	6-8	14	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	Dash lamp double.
National	6-8	18	6-8	4H	6-8	2	6-8	2	.....	E.S.	.....	.....	Dash lamp double.
Nelson	6-8	15	6-8	4H	6-8	2	6-8	2	5-30	E.D.	D.	.....	
Oakland 34-B	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.	Dash lamp Ediswan S.
Oldsmobile	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Olympian	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.	
Overland	6-8	16	.....	.....	3-4	2	3-4	2	20	E.D.	S.	Series	Dash and tail Ediswan S.
Owen O-36	28	21	28	4H	28	2	28	2	10	E.D.	D.	.....	
M-25	14	21	14	4H	14	2	14	2	10	E.D.	.....	.....	Headlamps Ediswan S.
Paige-Detroit	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Paterson	6-8	12	6-8	8H	.....	.....	.....	.....	.....	.....	.....	.....	Dash lamp Ediswan D.
Packard	6-8	24	6-8	6	6-8	2	6-8	4	10	E.S.	S.	Warner lens.	Aux. headlights, 6 cp.
Pan American	6-8	15	.....	.....	6-8	2	6-8	2	20	E.S.	S.	D Bulb	Dash lamp Ediswan D.
Peerless	6-8	15	6-8	4	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	
Pierce-Arrow	6-8	21	6-8	4	6-8	4	6-8	4	10	E.S.	S.	Sutterly	
Pilot	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.	
Premier	6-8	21	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	Dash lamp double.
Regal	6-8	21	.....	.....	6-8	4	6-8	2	.....	E.S.	S.	Resist.	
Reo	6-8	15	.....	.....	3-4	2	3-4	2	5	E.D.	D.	Series	
Saxon	6-8	12	.....	.....	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Scripps-Booth	6-8	21	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	Series	Inspec. lamp, 6 v., 2 cp.
Simplex	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Tail lamp double.
Singer	6-8	32	.....	.....	6-8	2	6-8	2	5	E.S.	S.	Warner lens.	Tail lamp double.
Standard	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	
Stanley	6-8	18	6-8	4H	6-8	2	6-8	2	.....	E.D.	D.	Warner lens.	
Stearns SK8	12-16	24	12-16	4H	12-16	2	12-16	2	20	E.S.	S.	.....	Dash lamp double.
SKL-4	12-16	18	12-16	4H	12-16	2	12-16	2	20	E.S.	S.	.....	Dash lamp double.
Stephens	6-8	21	6-8	4	3-4	2	3-4	2	20	E.S.	S.	.....	
Studebaker	6-8	12	.....	.....	6-8	2	6-8	2	10	E.S.	S.	Resist.	
Stutz	6-8	21	6-8	4H	6-8	2	6-8	2	.....	E.D.	D.	Warner lens.	
Sun	6-8	18	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Resist.	
Velie	6-8	15	6-8	4	3-4	2	3-4	2	5	E.S.	S.	.....	Dash lamp double.
Westcott	6-8	15	6-8	4H	3-4	2	3-4	2	.....	E.S.	S.	.....	Dash lamp double.
White	12-16	25	12-16	4H	12-16	4	12-16	4	C.B.	E.D.	D.	Warner lens.	
Willys-Knight	6-8	16	.....	.....	3-4	2	3-4	2	.....	E.D.	S.	Series	Tail lamp Ediswan S.
Winton	6-8	21	6-8	12	6-8	4	6-8	2	20	E.S.	S.	.....	
Woods	60 / 6-8	25	30	8H	30	10	30	10	10	E.D.	D.	.....	

ABBREVIATIONS:—C.B.—Circuit Breaker. D.—Double wiring system. E.D.—Ediswan double contact. E.S.—Ediswan single contact. H.—Small bulbs in headlamps for city driving. Resist.—Resistance S.—Single wiring system. Series—Series connection.

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Tires and Tubes

MOTOR WORLD GUIDE

Tires and Tubes

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
ACME	Plain	16.00	17.20	s18.10	23.00	s23.90	24.40	25.80	s27.50	s30.80	s31.90	33.20	34.30	35.50	36.70	38.00	s45.30	46.70	48.30	49.60	51.10	52.60	57.70	59.50	61.40	s76.80	s78.90
	Kam Tread	.....	s17.90	.....	s24.20	s25.10	25.60	.....	.....	.....	s33.50	35.00	36.10	37.40	.....	.....	.....	qc49.00	50.70	52.10	53.70	55.30	60.60	62.60	64.30	.....	.....
	Dimple	18.40	19.60	s21.00	26.40	s27.40	28.00	29.80	s31.60	s35.40	s36.70	38.30	39.60	40.90	42.20	43.70	s52.10	53.70	55.50	57.10	58.80	60.50	66.30	68.50	70.50	s88.30	s90.70
	Hemisphere	20.20	s21.60	.....	29.00	.....	30.80	32.70	.....	.....	s40.50	qc42.10	43.60	44.90	46.40	s48.10	.....	.....	qc61.00	62.80	64.70	66.50	s73.60	s75.20	77.70	.....	.....
	Gray and Red Tubes	3.65	3.85	4.15	4.95	5.15	5.45	5.85	6.05	6.05	6.25	6.40	6.65	6.75	6.95	7.15	8.15	8.35	8.45	8.60	8.80	9.05	10.00	10.30	10.55	11.20	11.50
ADVANCE	Plain	s12.75	s13.40	.....	s17.45	s18.35	20.40	s23.80	.....	.....	s26.75	27.25	28.55	29.15	30.15	31.05	.....	s38.05	s39.25	41.10	41.75	43.45	.....	s46.90	s49.65	s74.55	.....
	Non-Skid	s13.35	s14.10	.....	s18.25	s19.30	21.40	s24.95	.....	.....	s28.00	28.60	29.85	30.65	31.50	32.60	.....	s39 95	s41.30	43.10	43.90	45.60	.....	s49.20	s52.15	s78.20	.....
AJAX	Plain	s13.65	s14.45	s18.75	18.60	s19.50	22.55	26.95	28.85	s28.95	30.25	30.80	32.10	32.65	34.10	34.55	.....	.....	43.90	45.55	46.10	47.80	s52.45	52.50	54.45	.....	.....
	Non-Skid	s15.30	s16.10	s.....	s21.35	s22.20	25.30	29.70	.....	s32.25	33.55	34.10	35.40	35.95	37.40	37.85	qc46.10	qc47.20	48.30	49.95	50.80	52.20	56.85	s56.90	58.85	s78.35	s79.30
	Road King	s14.70	s15.55	.....	s19.95	s20.95	24.25	.....	.....	.....	32.50	33.10	34.55	35.10	.....	37.10	.....	48.40	48.95	51.20	52.05	53.90	61.15	s61.40	63.25	.....	.....
	Gray Tubes	3.20	3.00	3.40	3.75	3.85	4.00	4.30	4.50	4.75	4.85	5.05	5.25	5.35	5.50	5.70	6.15	6.35	6.50	6.60	6.85	7.00	8.40	8.50	8.60	9.20	9.35
	Red Tubes	3.50	3.75	4.00	4.60	4.75	4.90	5.15	5.40	5.75	5.90	6.05	6.25	6.35	6.50	6.70	7.60	7.80	8.05	8.30	8.50	8.75	9.90	10.00	10.15	10.85	11.05
AMAZON	Ribbed	.....	qs16.75	.....	qs21.70	.....	qc25.05	.....	.....	.....	.....	qc33.90	qc36.30	qc36.90	.....	.....	.....	.....	qc49.20	qc51.45	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs16.70	qs17.65	.....	qs22.85	.....	qc26.35	.....	.....	.....	qs34.75	qc35.70	c38.20	c38.85	.....	.....	.....	qc50.35	c51.80	c54.15	c54.90	qc57.45	c64.75	.....	c66.95	.....	.....
	Red-Gray Tubes	3.15	3.50	.....	4.10	.....	4.25	4.50	.....	.....	5.70	5.90	6.15	6.25	6.40	6.50	.....	7.20	7.30	7.45	7.65	7.95	8.55	9.00	9.10	9.25	10.50
AMERICAN	Ribbed or Plain	15.00	16.00	.....	20.45	22.10	24.05	.....	.....	.....	32.30	33.00	34.70	35.45	.....	.....	.....	.....	47.40	49.60	50.30	.....	58.35	.....	61.90	.....	.....
	Triple A Non-Skid	15.80	16.80	.....	21.35	23.00	24.95	.....	.....	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	53.65	59.40	60.30	62.95	.....	.....
	Seal Brown Tubes	3.00	3.25	.....	3.75	3.80	3.85	4.20	.....	.....	4.65	4.80	5.00	5.15	.....	5.60	6.20	6.25	6.30	6.40	6.55	6.70	7.65	7.75	7.90	9.35	9.50
	Red Indian Tubes	3.25	3.50	.....	4.20	4.25	4.30	4.60	.....	.....	5.40	5.50	5.70	5.80	6.00	6.15	6.95	7.00	7.10	7.20	7.35	7.65	8.60	8.85	8.95	10.20	10.40
ARABIAN	Fluted Tread	.....	qs15.60	.....	qs20.05	.....	24.45	.....	.....	.....	s31.05	qc31.90	32.80	33.00	.....	36.05	.....	.....	qc43.45	s46.75	48.45	49.05	.....	.....	54.40	.....	.....
	Non-Skid	.....	qs16.40	.....	qs21.10	.....	25.65	.....	.....	.....	32.65	qc33.90	34.45	34.65	.....	38.95	.....	.....	qc45.60	49.05	50.80	51.50	.....	.....	57.10	.....	.....
	Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
ARCADIA	Plain	qs14.00	qs15.20	.....	s19.60	.....	22.25	27.85	.....	qs32.70	s29.80	30.40	31.65	32.60	37.60	34.55	.....	.....	43.40	45.25	45.95	47.90	53.25	s59.15	56.00	s99.75	s103.25
	Non-Skid	.....	qs15.95	.....	s20.60	.....	23.45	29.15	.....	qs34.40	31.45	31.90	33.35	34.25	39.45	36.45	.....	.....	45.70	47.45	48.25	50.25	55.75	s62.40	58.95	s105.00	s108.50
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
ARCHER	Ribbed Tread	.....	.....	.....	.....	.....	qc37.70	.....	.....	.....	.....	qc47.40	qc48.65	qc49.90	.....	qc52.40	.....	qc54.50	qc55.90	qc57.30	qc58.60	.....	q~59.1~	qc70.95	ic72.35	.....	qc87.30
	Non-Skid	.....	.....	.....	.....	.....	qc39.70	.....	.....	.....	.....	qc49.45	qc50.65	qc51.95	.....	qc54.40	.....	qc56.55	qc57.95	qc59.25	qc60.60	qc61.90	qc71.20	qc73.00	ic74.35	.....	qc89.35
	Gray Tubes	.....	3.15	.....	3.25	.....	3.40	.....	.....	.....	.....	4.60	4.75	4.85	.....	5.10	.....	.....	6.00	6.05	6.15	6.25	6.35	7.35	7.50	7.65	.....	8.50
	Red Tubes	.....	4.15	.....	4.25	.....	4.40	.....	.....	.....	.....	6.00	6.15	6.30	.....	6.55	.....	.....	7.80	7.85	8.00	8.15	8.20	9.55	9.75	9.95	.....	10.80
ARMSTRONG	Red Tubes	.....	4.00	4.50	4.75	.....	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.60	9.45	9.60	9.75	11.60	11.75
	Plain	.....	19.00	.....	23.75	.....	27.00	31.25	.....	.....	37.00	38.00	40.00	40.50	44.50	42.00	.....	.....	54.50	57.00	60.50	.....	66.00	73.00	68.50	.....	.....
	Non-Skid	.....	21.25	.....	26.00	.....	31.00	34.25	.....	.....	40.75	42.00	43.00	43.50	48.75	46.00	.....	.....	59.50	62.50	66.50	.....	72.50	80.00	74.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	40.05	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	45.10	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
BALTIMORE	Concord	20.17	20.64	.....	25.07	o 27.80	29.50	32.07	.....	.....	o 34.45	35.44	o 36.72	38.02	o 39.47	40.75	.....	45.72	47.23	o 48.68	51.36	o 52.77	o 59.59	62.45	o 65.12	o 86.21	93.51
	Box Tread	22.19	23.27	.....	29.10	o 30.03	33.22	36.08	.....	.....	o 40.15	41.47	o 42.68	44.22	o 45.65	48.18	.....	50.00	51.81	o 54.89	59.62	o 60.83	o 67.76	70.40	o 72.05	o 89.65	104.28
	Tubes	3.25	3.34	.....	4.30	4.45	4.60	4.95	.....	.....	5.45	5.55	5.75	5.95	6.05	6.20	.....	7.25	7.45	7.60	7.85	8.10	8.90	9.15	9.45	.....	11.05
	Wil-Lex Non-Skid	.....	qs14.10	.....	qs18.25	qs19.30	q21.40	.....	.....	.....	qs28.00	.....	qc29.85	qc30.65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
BATAVIA	Plain	.....	qs14.35	.....	qs18.25	.....	qc21.35	.....	.....	.....	.....	qc29.05	qc30.45	qc31.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ribbed	.....	.....	.....	.....	.....	c23.70	c26.90	.....	.....	.....	qc32.30	c33.90	c34.60	qc36.20	cs36.75	cs43.15	qc44.55	c46.00	c48.10	c48.75	cs50.95	c56.40	.....	c59.80	.....	.....
	Security Tread	qs14.40	qs16.80	.....	qs21.35	qs23.00	c24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	cs45.45	qc46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	cs97.25	cs99.00
	Gray Tubes	2.95	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	9.20	9.45
BERGOUGNAN	Plain	s14.85	s17.70	.....	s21.60	s22.85	25.20	s27.85	.....	35.25	s30.90	32.85	35.20	37.20	s38.00	s40.00	s46.55	47.60	50.35	50.95	51.45	s53.05	59.45	60.70	63.35	s80.40	88.10
	Non-Skid	s16.70	s18.10	.....	s25.20	s26.30	27.55	s29.55	.....	39.65	s34.90	36.50	39.30	40.75	s42.65	s43.70	s53.30	52.90	53.85	55.05	56.70	s59.10	65.15	68.15	69.65	s88.75	91.30
	Red Tubes	3.75	3.80	.....	4.45	4.80	4.85	5.20	.....	6.60	6.05	6.25	6.60	6.75	6.95	7.15	7.35	8.10	8.20	8.30	8.65	8.90	9.70	10.00	10.15	11.15	11.30
BESAW	Blackford Non-Skid	.....	qs15.70	.....	qs19.95	qs21.35	c23.60	.....	.....	.....	qs31.50	qc32.05	qc33.90	34.50	.....	.....	.....	.....	.....	cs48.60	.....	.....	.....	.....	.....	.....	.....
	BeSaw Non-Skid	.....	24.25	.....	30.30	31.35	35.05	38.00	.....	.....	42.30	43.70	45.00	46.55	48.10	50.75	.....	.....	54.60	57.90	62.75	64.10	71.35	74.15	75.90	.....	.....
	BeSaw Plain	.....	20.50	.....	24.90	27.65	29.30	31.80	.....	.....	34.30	35.55	36.90	38.15	39.30	40.50	.....	.....	46.95	48.40	49.70	51.10	57.80	59.40	60.90	.....	.....
BOONE	Smooth	.....	14.20	.....	18.15	19.40	21.10	.....	.....	.....	28.25	28.95	30.15	30.95	.....	33.10	38.85	.....	41.35	43.30	43.95	.....	50.75	.....	53.80	.....	.....
	Ribbed Non-Skid	.....	15.60	.....	19.95	21.34	23.21	.....	.....	.....	31.10	31.85	33.15	34.05	.....	36.40	42.70	.....	45.50	47.60	48.45	.....	55.80	.....	59.30	.....	.....
	Special Non-Skid	.....	18.50	.....	23.50	25.30	27.45	.....	.....	.....	36.65	37.40	39.25	40.10	.....	42.55	50.00	.....	53.25	55.60	56.50	.....	65.35	.....	69.25	.....	.....
	Black Tubes	.....	3.40	.....	3.80	4.00	4.20	.....	.....	.....	5.40	5.55	5.75	5.90	.....	6.15	7.15	.....	7.30	7.40	7.60	.....	8.90	.....	9.25	.....	.....
	Red Tubes	.....	3.95	.....	4.50	4.70	4.95	.....	.....	.....	6.40	6.60	6.75	6.95	.....	7.20	8.40	.....	8.65	8.80	8.95	.....	10.50	.....	10.95	.....	.....
	Gray Tubes	.....	3.05	.....	3.45	3.65	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	5.55	6.50	.....	6.65	6.75	6.90	.....	8.10	.....	8.40	.....	.....
BOWERS	Plain	18.55	19.65	.....	25.40	28.05	29.65	31.70	.....	.....	34.90	36.00	37.60	38.90	41.95	44.05	.....	.....	52.25	54.35	56.40	.....	67.70	69.30	70.80	.....	99.95
	Grip Tread	20.60	23.60	.....	31.15	32.15	34.90	38.00	.....	.....	41.05	42.70	45.05	46.70	48.20	49.30	.....	.....	55.40	58.50	63.60	.....	72.65	75.50	77.05	.....	111.85
	Gray Tubes	3.30	3.80	.....	4.10	4.25	4.60	4.85	.....	.....	5.95	6.10	6.40	6.50	6.60	6.75	.....	.....	7.70	8.10	8.40	.....	9.80	9.70	10.60	.....	11.75

Digitized by Google

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
BRAENDER	Plain	qs13.95	qs14.30	qs18.10	q18.35	qs19.15	q21.30	q24.05	qs30.00	qs27.65	q28.20	q28.70	q30.15	q30.80	q32.65	q31.90	41.25	40.05	41.35	43.25	43.95	44.60	49.40	55.90	53.35	qs82.95	cs87.75
	Non-Skid	qs16.20	qs16.45	qs21.00	q21.30	qs22.20	q24.70	q27.00	qs34.80	qs32.05	q32.75	q33.35	q35.00	q35.75	q37.90	q37.00	47.75	46.40	47.95	50.15	51.00	51.75	57.30	64.80	61.90	qs96.20	cs101.75
	Gray Tubes	3.25	3.40	3.60	4.15	4.25	4.40	4.50	5.30	5.30	5.40	5.65	5.75	5.85	6.10	6.30	7.00	7.10	7.20	7.35	7.55	7.90	8.90	9.05	9.15	10.00	10.25
	Red Tubes	3.60	3.70	4.00	4.60	4.70	4.80	5.00	6.00	5.90	6.00	6.20	6.40	6.60	6.80	7.00	7.80	7.90	8.10	8.20	8.40	8.70	9.80	10.00	10.20	11.00	11.20
BRUNSWICK	Plain	13.30	qs14.35	.....	qs18.25	s19.60	21.35	c24.20	.....	.....	qs28.45	c29.05	c30.45	c31.20	c32.60	c33.10	c38.85	c40.05	c41.35	c43.30	c43.95	c45.80	c50.75	c51.55	c53.80	s83.10	c92.45
	Skid Not	15.60	qs16.80	.....	qs21.35	qs23.00	24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	c45.45	c46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	s103.90	c113.00
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	4.10	.....	.....	4.70	4.85	5.05	5.20	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
	Ribbed Tread	.....	qs15.95	.....	qs20.30	.....	qc2370	.....	.....	.....	qs31.65	qc32.30	qc33.90	qc34.65	.....	.....	qc43.20	qc44.55	qc46.00	qc48.05	qc48.80	.....	c56.45	.....	c59.80	.....	.....
BULL	Plain	qs13.50	qs14.00	.....	qs17.90	qs19.55	21.10	c23.80	.....	.....	qs27.85	q28.35	c30.00	c30.45	c31.65	cs37.90	.....	.....	cs41.75	c43.25	c43.95	cs53.75	c50.90	cs51.75	c53.65	.....	.....
	Non-Skid	qs15.15	qs15.70	.....	qs19.95	qs21.35	23.60	c26.95	.....	.....	qs31.50	q32.05	c33.90	c34.50	c36.30	cs43.40	.....	.....	cs46.75	c48.60	c49.15	cs60.00	c59.95	cs61.05	c63.10	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CAPITOL	Plain	qs13.90	qs13.65	.....	qs17.90	qs18.60	20.80	24.15	.....	c29.00	qs27.15	c27.95	29.15	c29.70	c33.70	c31.75	.....	.....	c39.75	c41.70	c42.35	c43.60	c47.70	cs53.15	c50.50	.....	.....
	Non-Skid	qs14.85	qs14.30	.....	qs18.35	qs19.70	21.75	25.80	.....	c30.20	qs28.50	c29.20	30.40	c31.25	c35.35	c33.10	.....	.....	c42.00	c43.55	c44.45	c46.05	c50.05	cs56.55	c52.95	.....	.....
	Redman Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Paragum Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
CARLISLE	Lightning Tread	.....	.....	.....	.....	.....	qc38.50	.....	.....	.....	.....	qc48.75	qc50.25	qc51.50	.....	.....	c55.00	qc56.50	c58.00	c59.25	c60.75	.....	c72.00	.....	c75.50	.....	cs91.50
CARSPRING	Plain	qs18.20	qs19.55	.....	s25.30	.....	29.15	36.30	.....	qs36.75	s35.20	36.00	37.70	38.50	44.55	41.00	.....	.....	51.40	53.70	54.45	56.65	62.50	s69.85	66.25	s102.85	s105.60
	"C" Tread	.....	qs20.45	.....	s26.50	.....	30.55	38.25	.....	qs38.50	s36.95	37.75	39.60	40.50	46.75	43.15	.....	.....	53.90	56.25	57.15	59.50	65.70	s73.70	69.55	s108.35	s111.00
	Suction Tread	.....	.....	.....	s29.75	.....	34.25	42.90	.....	qs42.70	s41.40	42.30	44.25	45.35	52.25	48.20	.....	.....	60.35	63.00	64.10	66.75	73.50	s82.50	77.80	s121.00	s124.30
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11 20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
CENTURY-PLAINFIELD	Ribbed	.....	18.25	.....	23.40	24.80	27.05	.....	.....	.....	36.35	37.60	39.30	40.15	.....	44.40	49.90	51.25	52.85	54.85	55.95	.....	63.35	65.85	66.35	.....	.....
	Non-Skid	.....	19.20	.....	24.65	26.10	29.50	32.30	.....	.....	38.25	39.60	41.40	43.25	.....	46.75	52.50	53.95	55.65	57.75	58.90	.....	66.70	69.30	69.85	97.25	92.50
	Tubes	3.45	3.55	3.80	4.55	4.70	4.90	5.25	5.55	5.65	5.75	5.85	6.10	6.30	6.35	6.55	7.35	.....	7.90	8.05	8.35	8.60	9.45	9.65	10.00	.....	11.65
CHAMPION	Non-Skid	14.45	14.10	.....	18.25	.....	21.40	23.80	.....	.....	28.00	28.60	29.85	30.65	.....	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Champion Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	4.55	.....	.....	4.75	4.85	5.00	5.15	5.80	6.00	.....	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tube	3.40	3.70	.....	4.05	4.30	4.40	4.60	.....	.....	5.50	5.65	5.95	6.10	6.25	6.50	.....	7.45	7.50	7.70	7.80	3.05	9.15	9.30	9.40	.....	.....
CHESTER	Plain	s13.50	s14.00	s18.25	s17.90	s19.55	21.10	23.80	s30.00	s31.90	s27.85	28.35	30.00	30.45	s31.65	s37.90	.....	.....	s41.75	43.25	43.95	s53.75	50.90	s51.75	53.65	.....	.....
	Non-Skid	s15.15	s15.70	s20.75	s19.95	s21.35	23.60	26.95	s34.20	s37.50	s31.50	32.05	33.90	34.50	s36.30	s43.40	.....	.....	s46.75	48.60	49.15	s60.00	59.95	s61.05	63.10	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CLEVELAND-STANDARD	Plain	19.80	20.50	.....	25.30	26.80	28.15	31.90	.....	34.10	34.50	35.65	37.40	38.50	39.60	40.70	.....	47.55	47.95	48.80	50.15	51.45	58.30	60.00	61.60	79.20	88.00
	Non-Skid	20.90	23.60	.....	29.90	31.90	34.75	36.30	.....	39.15	40.00	40.90	41.80	42.90	44.20	45.50	49.50	51.05	51.90	53.25	56.10	58.10	64.20	67.75	69.75	90.80	96.80
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.20	5.40	5.85	5.95	6.15	6.30	6.45	6.90	6.95	7.80	7.90	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
	Gray Tubes	3.40	3.50	3.75	4.30	4.40	4.50	5.00	5.20	5.35	5.50	5.65	5.80	6.00	6.20	6.40	7.15	7.25	7.40	7.50	7.70	8.00	8.90	9.10	9.20	10.55	10.75
COLUMBIA	Plain	13.80	14.20	17.30	18.45	19.45	21.50	27.90	.....	29.85	28.25	28.80	30.10	30.80	37.20	32.85	.....	.....	41.60	43.45	44.15	45.90	49.55	57.85	52.55	.....	.....
	Non-Skid	14.50	14.95	.....	19.35	20.35	22.45	29.25	.....	.....	29.65	30.20	31.65	32.40	39.00	34.50	.....	.....	43.65	45.65	46.35	48.25	52.05	60.75	55.20	.....	.....
	Gray Tubes	2.95	3.00	3.40	3.75	3.80	3.85	4.55	.....	4.95	4.75	4.85	5.00	5.15	5.75	5.50	.....	.....	6.25	6.45	6.65	6.85	7.80	8.60	8.10	.....	.....
	Red Tubes	3.30	3.35	3.80	4.20	4.25	4.30	5.05	.....	5.50	5.30	5.40	5.55	5.70	6.45	6.10	.....	.....	7.00	7.15	7.35	7.65	8.70	9.50	8.95	.....	.....
COMBINATION	Plain	qs12.75	qs13.70	.....	qs17.85	qs18.85	20.55	q23.25	.....	.....	qs27.35	27.85	29.20	29.85	31.30	31.80	39.20	.....	39.75	41.50	42.20	43.90	s46.40	47.15	49.10	.....	cs70.25
	Hold-on Non-Skid	qs15.05	qs16.05	.....	qs20.55	qs21.55	23.70	q26.85	.....	.....	qs31.35	32.00	33.65	34.26	35.90	36.25	44.15	.....	46.75	48.85	49.60	51.60	s57.25	58.10	60.60	.....	cs84.30
	Gray Tubes	3.00	3.15	.....	3.75	3.80	3.90	4.15	.....	.....	5.00	5.25	5.35	5.50	5.65	5.90	6.55	.....	6.75	6.95	7.15	7.25	8.15	8.40	8.55	.....	9.10
	Red Tubes	3.30	3.45	.....	4.15	4.20	4.35	4.65	.....	.....	5.50	5.85	5.95	6.10	6.20	6.50	7.20	.....	7.50	7.75	8.00	8.10	9.15	9.30	9.45	.....	10.05
CONVERSE	Rough Tread	.....	.....	.....	qs28.10	qs32.90	36.10	.....	.....	.....	43.05	44.40	45.95	47.60	48.80	50.15	qc52.45	qc54.05	55.65	58.60	63.00	64.80	72.00	74.85	77.35	.....	.....
	Smooth Tread	.....	qs21.20	.....	qs27.30	qs30.10	31.75	.....	.....	.....	36.75	38.10	39.50	40.90	42.10	43.45	qc47.25	qc48.70	50.25	51.85	53.25	54.70	61.65	63.65	65.25	.....	.....
	Gray Tubes	.....	3.30	3.90	4.10	4.20	4.35	5.15	.....	.....	5.35	5.50	5.65	5.80	6.55	6.75	6.85	6.95	7.10	7.25	7.50	8.50	8.80	9.70	9.10	10.40	10.60
	Red Tubes	.....	3.75	4.25	4.65	4.70	4.85	5.70	.....	.....	5.85	6.15	6.30	6 45	7.25	7.45	7.65	7.75	7.90	8.05	8.30	9.40	9.75	10.70	11.20	11.50	11.90
CORTLAND	C. C. Plain	.....	s14.10	.....	s18.35	.....	s21.45	s23.75	.....	.....	s28.15	28.70	30.05	30.70	s31.50	s32.30	s38.95	s40.05	41.30	43.25	43.95	s44.75	49.35	s50.85	52.25	s68.75	s70.85
	C. C. Non-Skid	.....	s14.85	.....	s19.20	.....	22.50	s24.90	.....	.....	s29.45	30.10	31.40	32.25	s32.90	s33.25	s40.95	s42.05	43.45	45.35	46.20	s45.80	51.85	s52.90	54.90	s71.50	s74.50
	Yankee Plain	.....	s19.65	.....	s24.10	.....	27.70	s29.90	.....	.....	s35.65	37.60	38.50	39.50	s40.50	s41.50	s46.50	s47.55	48.50	51.10	54.90	s57.42	65.15	s66.85	68.85	s81.45	s83.25
	Yankee Non-Skid	.....	s21.80	.....	s26.75	.....	30.75	s33.15	.....	.....	s39.60	41.75	42.80	43.85	s44.95	s46.00	s51.70	s52.80	53.90	56.75	61.00	s63.80	72.35	s74.25	76.50	s90.50	s92.50
CUPPLES	Rough Tread	.....	qs18.00	.....	qs25.00	.....	qc30.00	.....	.....	.....	qs37.00	qs39.00	qc40.00	c41.00	.....	.....	.....	qc48.00	qc49.00	qc52.00	c56.00	.....	c63.00	.....	cs67.00	.....	.....
	Plain Tread	.....	17.00	.....	23.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Gray Tubes	.....	3.15	.....	3.80	.....	4.00	.....	.....	.....	5.10	5.25	5.40	5.60	.....	.....	6.70	.....	6.90	7.05	7.20	.....	8.40	8.60	8.75	.....	.....
	Red Tubes	.....	3.95	.....	4.75	.....	4.95	.....	.....	.....	6.40	6.60	6.75	6.95	.....	.....	.....	8.40	8.65	8.80	8.95	.....	10.50	.....	10.95	.....	.....
	Rhinos Inner Tubes	.....	7.90	.....	9.50	.....	9.90	.....	.....	.....	12.80	13.20	13.50	13.90	.....	.....	.....	16.80	17.30	17.60	17.90	.....	21.00	.....	21.90	.....	.....
CURTIS	Plain	18.20	18.50	.....	24.70	.....	27.60	.....	.....	.....	32.25	33.45	34.65	35.85	.....	38.10	.....	.....	44.15	45.50	46.75	48.00	54.30	55.80	57.30	.....	.....
	Suction	20.70	20.90	.....	27.25	.....	33.00	.....	.....	.....	39.75	41.15	42.35	43.90	.....	46.20	.....	.....	51.30	52.90	57.40	59.10	65.25	66.60	71.30	.....	.....
	Gray Tubes	3.35	3.45	.....	4.00	.....	4.15	.....	.....	.....	5.40	5.65	5.80	5.90	.....	6.15	.....	.....	7.35	7.55	7.75	8.00	9.00	9.30	9.40	.....	.....
	Red Tubes	3.65	3.85	.....	4.45	.....	4.55	.....	.....	.....	6.05	6.20	6.45	6.55	.....	6.80	.....	.....	8.15	8.30	8.65	8.80	9.90	10.20	10.30	.....	.....
DAYTON	Plain	qs21.65	qs20.70	.....	qs25.20	qs27.95	29.65	.....	.....	s44.70	qs34.75	qc36.05	37.40	38.70	s39.85	41.10	s55.95	.....	47.70	49.15	50.50	51.85	s58.70	s60.40	61.90	s80.80	s92.85
	Non-Skid	qs26.30	qs24.75	.....	qs31.05	qs32.05	35.45	.....	.....	.....	qs42.90	qc44.30	45.65	47.25	s48.80	51.55	.....	.....	55.40	58.75	63.80	65.15	s72.60	s75.40	77.20	s96.10	s111.80
	Red Tubes	3.65	3.75	.....	4.80	4.95	5.15	.....	.....	5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80	.....	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
DEFIANCE	Plain	qs13.00	qs13.15	.....	17.45	s17.70	21.30	22.55	.....	.....	s26.95	27.70	28.55	29.15	29.95	31.10	.....	.....	39.05	41.50	42.00	43.25	.....	cs47.85	c49.65	.....	.....
	Tiger Tread	qs14.35	qs14.60	.....	19.20	s19.80	22.85	25.05	.....	.....	s29.05	31.08	31.55	32.85	33.28	33.70	.....	.....	42.25	45.70	47.25	48.45	.....	cs51.15	c54.45	.....	.....
	Gray Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
	Red Tubes	3.15	3.45	.....	3.90	3.95	4.00	4.50	.....	4.95	5.00	5.40	5.55	5.70	5.85	6.10	.....	.....	7.10	7.25	7.40	7.65	.....	8.20	8.30	.....	.....
	Double Wall Tubes	4.13	4.20	.....	4.97	5.11	5.32	5.88	.....	.....	6.65	6.86	7.14	7.35	7.77	7.70	.....	.....	9.03	9.24	9.59	9.85	.....	11.55	11.48	.....	.....
DELION	Plain	16.10	18.00	19.40	22.80	24.15	26.45	28.00	33.15	35.55	31.15	33.15	35.45	37.45	38.35	40.35	46.90	48.00	50.75	51.37	51.90	53.45	59.90	61.20	62.85	80.95	83.80
	Non-Skid	18.00	19.35	21.00	26.45	27.60	29.00	29.75	39.25	40.00	35.20	36.85	39.65	40.95	42.90	44.05	52.25	53.35	54.30	55.55	57.25	59.60	65.70	67.60	70.25	89.35	92.65
	Red Tubes	3.50	3.50	3.90	4.15	4.45	4.55	4.85	5.10	6.10	5.60	5.80	6.10	6.25	6.40	6.60	7.40	7.50	7.60	7.75	8.00	8.20	9.00	9.25	9.45	10.25	10.50
DIAMOND	Smooth	14.50	14.10	18.90	18.35	19.30	21.45	25.05	26.65	29.85	28.15	28.70	30.05	30.70	35.05	36.00	38.95	40.05	41.30	43.25	43.95	50.30	49.35	55.90	52.25	78.45	70.85
	Squeegee	15.20	14.85	19.80	19.20	20.30	22.50	26.25	27.90	31.25	29.45	30.10	31.40	32.25	36.85	37.80	40.95	42.05	43.45	45.35	46.20	52.85	51.85	58.65	54.90	82.30	74.40
	Gray Tubes	3.25	3.20	3.60	3.95	4.00	4.05	4.80	5.05	5.20	5.00	5.10	5.25	5.40	6.10	6.30	6.25	6.45	6.60	6.80	7.00	8.00	8.20	9.05	8.55	9.75	9.95
	Red Tubes	3.55	3.50	4.00	4.40	4.45	4.50	5.30	5.65	5.80	5.60	5.70	5.85	6.00	6.80	6.95	6.95	7.15	7.35	7.50	7.75	8.80	9.15	10.00	9.40	10.85	11.05
DOUBLE FABRIC	Xtra-Ply	16.35	qs17.45	.....	qs22.65	qs24.40	c26.70	.....	.....	.....	qs32.90	qc35.50	c37.30	c38.10	.....	c40.55	.....	.....	c48.15	c49.30	c51.50	c53.95	c63.20	.....	c66.85	.....	.....
	Duo-Cord Ribbed Non-Skid	.....	qs21.45	.....	qs27.95	.....	c32.10	.....	.....	.....	.....	qc43.35	c44.70	c46.05	.....	.....	c54.35	c56.05	c57.85	59.50	.....	.....	c71.75	.....	c75.80	.....	.....
	Brazil Gray Tubes	3.15	3.35	.....	3.80	3.85	4.05	4.15	4.35	.....	5.15	5.35	5.45	5.55	5.80	5.90	6.85	6.95	7.05	7.15	7.25	7.35	8.55	8.65	8.85	9.35	.....
DREADNAUGHT	Vacuum Red	.....	qs18.85	.....	qs23.70	qs24.90	c28.50	.....	.....	.....	qs34.70	c35.30	c37.10	c37.90	.....	cs39.95	.....	qc48.55	c49.20	c51.45	c52.25	cs54.65	c60.05	cs61.25	c63.50	.....	.....
	Ribbed Tread	.....	qs16.75	.....	qs21.70	qs22.95	c25.15	.....	.....	.....	qs30.20	c31.35	c32.55	c32.95	.....	cs36.20	.....	qc42.65	c43.85	c45.80	c46.55	cs48.95	c51.25	cs52.00	c54.30	.....	.....
	Super-Dreadnaught Red Tubes	.....	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	10.45	10.80
DRY CLIMATE	Plain	.....	14.35	.....	18.25	19.60	21.35	24.20	.....	.....	28.45	29.05	30.45	31.20	32.60	33.10	38.85	40.05	41.35	43.30	43.95	45.80	50.75	51.55	53.80	.....	.....
	Non-Skid	.....	16.80	.....	21.35	23.00	24.95	28.35	.....	.....	33.30	34.00	35.70	36.45	38.10	38.70	45.45	46.90	48.40	50.60	51.35	53.65	59.40	60.30	62.95	.....	.....
	Red Tubes	.....	3.95	4.10	4.50	4.60	4.95	5.35	5.60	5.75	6.40	6.60	6.75	6.95	7.05	7.20	8.40	8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95	.....	.....
	Gray Tubes	.....	3.05	3.15	3.45	3.65	3.80	4.45	4.50	4.55	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	.....	.....
DUNLOP	Cross Groove	.....	22.95	.....	28.55	30.20	32.15	34.60	36.50	.....	38.55	42.10	44.30	46.40	48.60	51.30	52.35	53.35	54.35	57.70	58.30	60.40	64.35	67.05	69.70	78.50	.....
	Traction Non-Skid	.....	25.00	.....	33.80	35.55	36.75	39.40	42.50	.....	46.25	50.10	53.05	55.50	57.70	59.55	60.15	62.25	64.35	66.45	68.65	70.75	79.50	83.00	84.40	92.35	97.90
	Tubes	4.80	4.85	.....	6.15	6.25	6.40	7.20	7.50	.....	7.70	8.00	8.25	8.55	9.05	9.05	10.45	10.45	10.70	10.95	11.20	11.50	12.90	13.35	13.35	14.75	15.15
DURAL	Red Tubes	3.65	3.75	4.20	4.55	4.70	4.85	5.10	5.45	6 15	6.05	6.20	6.50	6.75	6.95	7.10	8.40	7.85	8.05	8.25	8.45	8.65	9.50	9.75	9.90	.....	.....
	Gray Tubes	2.95	3.00	3.30	3.40	3.55	3.70	3.90	4.30	4.85	4.55	4.80	5.00	5.15	5.30	5.40	6.60	6.30	6.40	6.60	6.85	7.00	7.60	7.80	8.05	.....	.....
EHMAN	Plain	13.80	13.40	.....	17.45	18.35	20.40	23.80	.....	.....	26.75	27.25	28.55	29.15	33.30	34.20	.....	38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65	.....	.....
	Track Tread	14.45	14.10	.....	18.25	19.30	21.40	24.95	.....	.....	28.00	28.60	29.85	30.65	35.00	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Non-Skid Worm Drive Tread	14.45	14.10	.....	18.25	19.30	21.40	24.95	.....	.....	28.00	28.60	29.85	30.65	35.00	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Non-Skid Wrapped Tread	15.15	14.80	.....	19.15	20.25	22.45	26.20	.....	.....	29.40	30.05	31.35	32.20	36.75	37.70	.....	41.95	43.35	45.25	46.10	52.70	51.70	58.50	54.75	.....	.....
	Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	4.55	.....	.....	4.75	4.85	5.00	5.15	5.80	6.00	.....	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tubes	3.40	3.35	.....	4.20	4.25	4.30	5.05	.....	.....	5.30	5.40	5.55	5.70	6.45	6.60	.....	6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95	.....	.....
	Gray Universal Tube	.....	3.45	.....	3.45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Universal Tube	.....	3.80	.....	3.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
EMPIRE	Smooth Gray	qs15.20	qs16.10	.....	20.40	qs21.25	23.55	26.25	27.55	.....	31.45	32.05	33.45	34.00	35.45	35.70	.....	46.20	46.55	48.50	49.05	50.80	57.90	58.50	60.80	.....	.....
	Non-Skid Gray	qs16.00	qs16.95	.....	21.45	qs22.40	24.80	27.60	29.00	.....	33.10	33.70	35.20	35.80	37.30	37.55	48.75	48.60	49.00	51.05	51.65	53.45	60.95	61.60	64.00	.....	.....
	Gray Tubes	3.00	3.15	3.30	3.60	3.70	3.75	3.90	4.10	4.80	4.90	5.05	5.15	5.30	5.45	5.60	6.45	6.60	6.65	6.75	6.85	7.05	8.10	8.20	8.40	9.00	9.15
	Smooth Red	qs17.95	qs19.05	.....	24.90	qs26.10	28.55	32.45	34.10	.....	38.00	38.70	40.70	41.65	43.55	44.20	.....	56.50	55.55	57.95	60.10	61.30	64.75	65.70	68.60	.....	.....
	Non-Skid Red	qs18.75	qs20.00	.....	26.10	qs27.50	30.10	34.10	35.95	.....	40.00	40.80	42.85	43.70	45.85	46.60	58.20	59.45	58.45	61.00	63.35	64.55	68.20	69.20	72.20	.....	.....
	Red Tubes	3.45	3.65	3.85	4.05	4.20	4.20	4.65	5.15	5.35	5.55	5.65	5.90	6.05	6.20	6.40	7.65	7.80	7.90	8.15	8.35	8.50	9.50	10.00	10.10	10.95	11.10
ENDURANCE	Ball Bearing Non-Skid	.....	qs18.50	.....	qs23.75	.....	qc27.50	.....	.....	.....	s36.25	qc37.00	c38.75	c40.00	.....	.....	.....	qc51.50	qc53.00	qc55.50	c56.25	.....	c63.50	cs65.25	c67.25	.....	.....
	Gray Tubes	3.45	3.60	3.85	4.05	4.20	4.25	4.60	4.80	5.50	5.50	5.60	5.70	5.95	6.15	6.15	7.30	7.30	7.35	7.55	7.70	7.85	9.10	9.30	9.30	10.50	10.65
	Red Tubes	3.85	3.90	4.35	4.90	5.00	5.10	5.75	6.00	6.15	6.15	6.40	6.60	6.80	7.25	7.25	8.35	8.35	8.55	8.75	8.95	9.20	10.30	10.65	10.65	11.75	12.10
FALLS	Ribbed	.....	23.60	.....	30.70	.....	33.00	.....	.....	.....	42.60	45.70	47.25	49.00	.....	.....	.....	.....	59.10	60.20	62.50	.....	.....	.....	.....	.....	.....
	"Neverslip" Non-Skid	.....	25.30	.....	32.80	34.40	35.30	.....	.....	.....	45.40	48.90	50.25	51.85	.....	54.85	58.30	60.50	62.50	63.80	44.70	68.00	79.65	81.30	82.90	98.50	99.50
	Pure Gum Green Tubes	4.80	5.00	.....	6.80	7.05	7.20	.....	.....	.....	8.95	9.20	9.45	9.70	9.90	10.20	11.25	11.50	11.85	12.15	12.45	12.75	13.95	14.30	14.55	16.40	17.10
FEDERAL	Plain	qs14.30	qs13.90	.....	qs18.05	qs19.10	s21.10	qc24.70	.....	.....	qs27.65	qc28.20	c29.60	c30.20	qc34.45	c32.20	.....	qc39.40	c40.65	c42.50	c43.20	c44.95	c48.50	.....	c51.45	.....	.....
	Traffik Tread	qs14.95	qs14.60	.....	qs18.90	qs20.00	s22.15	qc25.85	.....	.....	qs29.00	qc29.65	c30.90	c31.70	qc36.20	c33.80	.....	qc41.30	qc42.80	qc44.65	qc45.40	qc47.20	qc50.95	.....	c53.95	.....	.....
	Rugged Tread	qs16.85	qs16.40	.....	qs21.30	.....	s24.90	qc29.06	.....	.....	qs32.60	qc33.35	c34.75	c35.70	qc40.70	c38.00	.....	qc46.50	c48.15	c50.20	c51.05	c53.15	c57.30	.....	c60.70	.....	.....
	Cord Non-Skid	.....	.....	.....	.....	.....	qc42.45	.....	.....	.....	.....	qc53.95	.....	qc56.90	.....	.....	.....	.....	qc64.00	qc65.50	qc67.15	.....	qc79.60	.....	qc83.40	.....	.....
	Gray Tubes	3.10	3.05	.....	3.75	3.80	3.95	4.70	.....	.....	4.85	5.05	5.05	5.30	5.65	5.65	.....	6.35	6.55	6.55	6.80	7.05	8.00	8.30	8.30	.....	.....
	Red Skin Tubes	3.70	3.45	.....	4.35	4.40	4.55	5.45	.....	.....	5.55	5.80	5.80	6.10	6.55	6.55	.....	7.25	7.50	7.50	7.85	8.10	9.20	9.50	9.50	.....	.....
FIRESTONE	Round Tread	13.50	14.00	18.25	17.90	19.55	21.10	23.80	30.00	31.90	27.85	28.35	30.00	30.45	31.65	37.90	39.80	40.85	41.75	43.25	43.95	53.75	50.90	51.75	53.65	83.20	89.25
	Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	34.20	37.50	31.50	32.05	33.90	34.50	36.30	43.40	44.55	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	95.30	101.35
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
	Triple Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	c47.85	c49.10	c50.45	.....	.....	c53.90	c55.30	c56.75	c58.15	c59.50	.....	c70.60	.....	c73.90	.....	.....
	F F Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	c51.40	52.75	c54.20	.....	.....	c57.85	c59.40	c60.95	c62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
	Super Size Red Tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.15	7.30	7.45	.....	.....	8.30	8.45	8.65	8.85	9.00	.....	10.25	.....	10.80	.....	.....
FISK	Plain	qs13.80	qs13.40	qs17.90	17.45	qs18.35	20.40	23.80	s26.10	s32.30	s26.75	27.20	28.55	29.15	33.30	37.60	.....	qc38.05	39.30	41.10	41.75	c50.15	c46.90	53.10	49.65	cs74.50	.....
	Gray and Black Non-Skid	qs14.50	qs14.10	.....	18.30	qs19.30	21.40	25.00	.....	s33.95	s28.00	28.60	29.85	30.65	35.00	39.45	qc38.50	qc39.95	41.30	43.10	43.90	c52.65	c49.20	55.70	52.10	cs78.20	cs70.65
	Red Non-Skid	.....	qs18.30	.....	22.90	qs24.15	26.75	.....	.....	.....	s33.60	34.30	35.80	36.80	.....	47.35	qc46.20	qc47.95	49.55	51.70	52.70	c63.30	c59.05	66.85	62.50	.....	cs84.80
	Ribbed Cord	.....	.....	.....	.....	.....	qc37.60	.....	.....	.....	.....	qc47.85	qc49.10	qc50.45	.....	.....	qc53.90	qc55.30	qc56.75	qc58.15	qc59.50	.....	qc70.60	.....	qc73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	.....	.....	qc39.50	.....	.....	.....	.....	qc50.25	qc51.60	qc53.00	.....	.....	qc56.65	qc58.10	qc59.60	qc61.05	qc62.50	.....	qc74.15	.....	qc77.60	.....	.....
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.75	4.75	4.95	4.95	5.15	5.50	5.50	6.15	6.15	6.40	6.40	6.65	6.90	7.80	8.10	8.10	9.25	9.45
	Red Tubes	.....	3.45	.....	4.30	.....	4.40	5.20	.....	5.45	5.45	5.70	5.70	5.95	6.35	6.35	7.10	7.10	7.30	7.30	7.65	7.90	8.95	9.30	9.30	.....	10.90

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
G & J	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.40	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Non-Skid	15.25	14.50	.....	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Stalwart Tread	.....	16.40	.....	21.35	22.45	24.55	.....	.....	.....	33.50	34.10	35.90	36.65	.....	38.95	.....	47.15	48.75	50.95	51.70	53.85	57.85	.....	61.25	.....	.....
	Cord	.....	.....	.....	.....	.....	39.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	.....
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	.....
GENERAL	Plain	.....	16.90	.....	21.05	.....	26.20	29.45	.....	.....	34.20	34.70	36.80	37.45	38.85	39.40	.....	.....	46.10	48.30	50.25	53.45	59.40	61.00	61.30	.....	.....
	Non-Skid	18.35	19.55	.....	24.75	26.70	29.45	33.65	.....	.....	38.65	39.40	41.65	42.40	44.60	45.30	.....	52.20	53.65	56.45	57.25	59.70	66.70	69.45	70.40	.....	.....
	Gray Tubes	3.05	3.10	3.55	3.70	3.90	4.05	4.30	.....	.....	5.00	5.25	5.45	5.60	5.80	5.90	.....	6.90	7.00	7.20	7.55	7.70	8.30	8.50	8.75	.....	10.20
	Red Tubes	3.85	4.00	4.60	4.85	4.90	5.10	5.40	.....	.....	5.40	6.60	6.90	7.00	7.35	7.50	.....	8.35	8.50	8.70	9.00	9.20	10.25	10.30	10.55	.....	12.55
	Rib Tread	.....	.....	.....	.....	.....	qc37.60	.....	.....	.....	.....	qc47.85	qc49.10	qc50.45	.....	.....	.....	.....	qc55.30	qc56.75	qc58.15	c59.50	.....	c70.60	.....	c73.90	.....	.....
	Non-Skid	.....	.....	.....	.....	.....	qc40.45	.....	.....	.....	.....	qc51.40	qc52.75	qc54.20	.....	.....	.....	.....	qc59.40	qc60.95	qc62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
GILLETTE SAFETY	Plain	14.90	13.85	.....	17.95	.....	21.10	.....	.....	.....	28.20	28.70	30.05	30.50	.....	32.25	.....	.....	41.40	43.30	43.95	.....	50.70	56.25	52.35	.....	.....
	Ribbed	.....	15.60	.....	21.35	.....	24.10	.....	.....	.....	31.50	32.05	33.90	34.50	.....	36.90	.....	.....	46.80	48.65	49.20	.....	57.85	57.85	61.05	.....	.....
	5,000-Mile Non-Skid	18.35	19.50	.....	24.75	.....	29.45	.....	.....	.....	38.65	39.40	41.65	42.40	.....	45.30	.....	.....	56.20	59.15	60.00	.....	71.25	72.75	73.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	.....	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	.....	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
	Gray Tubes	2.75	3.00	.....	3.75	.....	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	.....	8.00	8.15	8.30	.....	.....
	Hard Service Red Tubes	.....	3.70	.....	4.65	.....	4.90	5.35	.....	.....	6.00	6.05	6.15	6.30	6.55	6.55	.....	.....	8.10	8.25	8.40	.....	9.65	9.90	10.00	.....	.....
GLOBE	Plain	19.90	s19.55	24.65	25.45	s28.15	28.95	31.50	.....	36.40	34.50	34.90	36.60	38.35	38.75	39.60	43.75	qc45.60	47.25	48.70	50.10	51.50	57.80	59.70	61.10	79.50	81.10
	Good Grip Non-Skid	22.35	s22.25	27.35	28.15	s30.75	32.45	36.25	.....	40.10	38.10	38.75	40.45	41.20	42.90	43.25	47.50	qc50.80	53.05	56.15	59.55	61.60	66.50	67.85	72.60	90.65	97.25
	Red Tubes	3.50	3.65	3.95	4.25	4.45	4.50	4.75	.....	5.85	5.95	6.15	6.35	6.50	6.60	6.85	7.75	7.85	8.00	8.10	8.35	8.50	9.50	9.80	9.90	11.00	11.20
	Gray Tubes	3.05	3.25	3.50	3.85	3.95	4.00	4.20	.....	5.15	5.30	5.40	5.65	5.75	5.90	6.05	6.90	6.95	7.10	7.20	7.40	7.50	8.50	8.65	8.80	9.80	10.00
GOODRICH	Plain	13.80	13.40	17.95	17.45	18.35	20.40	23.80	25.30	28.35	26.75	27.25	28.55	29.15	33.30	34.20	37.00	38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65	74.55	67.30
	Safety Tread	14.45	14.10	18.80	18.25	19.30	21.40	24.95	26.50	29.70	28.00	28.60	29.85	30.65	35.00	35.90	38.90	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	78.20	70.70
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.75	4.85	5.00	5.15	5.80	6.00	5.95	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	9.25	9.45
	Brown Tubes	3.40	3.35	3.80	4.20	4.25	4.30	5.05	5.35	5.50	5.30	5.40	5.55	5.70	6.45	6.60	6.60	6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95	10.30	10.50
	S. S. Silvertown Ribbed Tread	.....	.....	.....	.....	.....	37.60	.....	.....	.....	.....	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	89.65
	Q. D. Silvertown Ribbed Tread	.....	.....	.....	.....	.....	39.35	.....	.....	.....	.....	50.05	51.35	52.75	.....	55.35	56.40	57.80	59.35	60.80	62.25	63.70	73.80	75.50	77.30	.....	93.70
	S. S. Silvertown Safety Tread	.....	.....	.....	.....	.....	39.50	.....	.....	.....	.....	50.25	51.60	53.00	.....	.....	56.65	58.10	59.60	61.05	62.50	.....	74.15	.....	77.60	.....	94.15
	Q. D. Silvertown Safety Tread	.....	.....	.....	.....	.....	41.30	.....	.....	.....	.....	52.60	53.95	55.40	.....	.....	59.25	60.70	62.30	.....	65.35	.....	77.50	.....	81.15	.....	98.40
GOODYEAR	Plain	.....	qs14.35	.....	q18.25	qs19.60	21.35	qc24.20	.....	.....	q28.45	c29.05	30.45	31.20	qc32.60	c33.10	qc38.85	qc40.05	41.35	c43.30	43.95	c45.80	c50.75	c51.55	c53.80	.....	.....
	All-Weather	.....	qs16.80	.....	q21.35	qs23.00	24.95	qc28.35	.....	.....	q33.30	c34.00	35.70	36.45	qc38.10	c38.70	qc45.45	qc46.90	48.40	c50.60	51.35	c53.65	c59.40	c60.30	c62.95	.....	.....
	Ribbed Tread Cord	.....	.....	.....	qc35.20	.....	qc37.60	qs40.05	.....	.....	qc46.20	qc47.85	qc49.10	qc50.45	.....	.....	qc53.90	qc55.30	c56.75	c58.15	c59.50	.....	c70.60	.....	c73.90	.....	c89.65
	All-Weather Cord	.....	.....	.....	qc37.85	.....	qc40.45	qc43.05	.....	.....	qc49.65	qc51.40	qc52.75	qc54.20	.....	.....	qc57.90	qc59.40	c60.95	c62.40	c63.95	.....	c75.80	.....	c79.45	.....	c96.30
	Unusual Sizes—Plain Tread	.....	.....	.....	.....	.....	.....	cs29.30	.....	.....	.....	qs34.90	.....	.....	cs39.15	qs39.75	.....	.....	.....	.....	.....	.....	.....	.....	qs64.55	qc83.10	.....
	All-Weather	.....	.....	.....	.....	.....	.....	cs34.30	.....	.....	.....	qs40.85	.....	.....	cs45.80	qs46.50	.....	.....	.....	.....	.....	.....	.....	.....	qs75.50	qc97.25	.....
	Regular Tubes	.....	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	.....	.....
	Heavy Tourist Tubes	.....	3.95	.....	4.50	.....	4.95	5.35	.....	.....	6.40	6.60	6.75	6.95	.....	7.20	8.40	.....	8.65	8.80	8.95	9.25	10.50	10.75	10.95	11.70	11.90
GORDON	Lotraction Tread	.....	s20.90	.....	s23.80	.....	qc27.90	.....	.....	.....	s33.60	qc36.05	qc37.00	qc38.05	.....	.....	.....	.....	qc47.95	qc49.95	qc51.95	.....	s62.25	.....	s65.65	.....	.....
	Triangle Tread	qs18.30	qs21.40	.....	qs25.00	qs26.40	qc29.15	.....	.....	.....	qs35.50	c38.00	c38.00	c40.25	c41.50	c42.75	.....	.....	c51.95	c52.85	c53.90	c56.30	c65.25	c67.25	c66.95	.....	.....
	Gray Tubes	3.40	3.55	.....	4.05	4.30	4.45	4.80	.....	.....	5.75	5.95	6.10	6.25	6.35	6.50	.....	7.70	7.80	7.90	8.05	8.35	9.45	9.70	9.85	.....	.....
	Red Tubes	3.85	3.95	.....	4.50	4.75	4.95	5.35	.....	.....	6.40	6.60	6.75	6.95	7.05	7.20	.....	8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95	.....	.....
GRYPHON	Non-Skid	15.60	15.00	.....	19.25	20.70	22.85	27.10	.....	31.70	29.95	30.65	31.90	32.80	37.10	34.75	.....	42.45	44.10	45.75	46.65	48.35	52.55	59.40	55.60	.....	.....
	Red Tubes	3.70	3.55	4.00	4.40	4.45	4.55	4.90	5.20	5.60	5.80	5.90	6.15	6.40	6.55	6.65	7.45	7.50	7.65	7.75	7.90	8.15	9.35	9.65	9.45	.....	.....
	Gray Tubes	3.25	3.20	3.70	3.75	4.05	4.15	4.80	4.95	5.20	5.00	5.10	5.25	5.45	6.00	5.70	6.85	6.60	6.75	6.90	7.05	7.35	8.40	8.95	8.60	.....	.....
HAMILTON	Cable Tread	14.80	15.85	.....	20.50	21.60	qc23.55	qc26.60	28.20	29.80	31.50	qc32.10	qc33.70	qc34.35	qc36.10	qc36.70	38.30	43.80	qc45.75	qc47.80	qc48.50	qc50.55	qc58.15	qc59.00	qc61.30	.....	77.90
	Non-Skid	16.20	17.25	.....	22.00	23.00	qc24.95	qc28.00	29.65	31.55	33.25	qc33.80	qc35.45	qc36.10	qc37.85	qc38.45	.....	46.35	qc48.30	qc50.30	qc51.00	qc53.05	qc61.65	qc62.50	qc64.80	.....	82.20
	Invincible and Perfection Pink Tubes	3.55	3.65	3.80	4.35	4.40	4.55	4.80	5.00	5.60	5.70	5.80	5.90	6.15	6.30	6.45	7.10	7.20	7.30	7.45	7.70	7.85	8.65	8.85	9.00	9.75	10.80
	Gray Tubes	2.90	3.00	3.20	3.50	3.60	3.75	3.95	4.35	4.70	4.75	4.85	5.05	5.20	5.35	5.45	6.30	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	8.95	9.45
HANES	Plain	14.45	15.00	.....	18.85	20.50	22.10	24.80	.....	.....	27.80	28.30	29.95	30.40	31.60	32.15	.....	.....	41.70	43.20	43.90	45.70	50.85	51.75	53.65	.....	.....
	Non-Skid	16.10	16.65	.....	20.95	22.35	24.60	27.95	.....	.....	31.50	32.05	33.90	34.50	36.30	36.90	.....	.....	46.75	48.60	49.20	51.05	59.95	61.05	63.10	.....	.....
	Tubes	3.10	3.20	.....	3.80	3.95	4.10	4.30	.....	.....	5.05	5.30	5.55	5.70	5.85	6.00	.....	.....	7.15	7.35	7.60	7.80	8.45	8.65	8.95	.....	.....
HARDMAN SENIOR	Plain	.....	s20.75	s24.00	s25.20	s27.90	29.70	34.00	.....	.....	s36.00	37.10	39.10	40.40	41.85	43.90	s47.75	49.40	51.35	53.25	55.25	57.75	63.10	s65.25	67.00	s86.35	s89.50
	Non-Skid	25.00	s23.50	s27.00	s28.00	s31.00	33.10	37.25	.....	.....	s40.00	41.15	43.50	44.90	47.15	48.85	s54.15	56.05	58.20	60.35	62.50	64.25	71.70	s74.80	76.00	s95.50	s99.50
	Red Tubes	.....	3.95	4.35	5.00	5.10	5.25	5.85	.....	.....	6.30	6.50	6.75	6.95	7.30	7.40	8.40	8.50	8.70	8.90	9.20	9.35	10.45	10.75	10.90	12.50	12.75
HARDMAN JUNIOR	Plain	.....	s15.50	s19.50	s20.35	s21.50	22.85	26.00	.....	.....	s27.75	29.50	31.40	32.45	34.90	36.50	s42.35	43.45	45.10	46.20	48.25	50.00	54.20	s56.00	58.00	.....	.....
	Non-Skid	18.00	s16.75	s22.00	s21.50	s22.50	24.15	29.40	.....	.....	s29.00	30.25	32.45	34.00	36.00	38.00	s44.00	45.00	46.75	47.85	49.50	51.60	56.00	s58.00	60.00	.....	.....
	Gray Tubes	.....	3.75	.....	4.30	4.40	4.50	4.85	.....	.....	5.75	5.85	6.00	6.20	6.40	6.45	7.55	7.60	7.70	7.85	8.05	8.20	9.35	9.50	9.60	.....	.....
HARTFORD	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Hartford Anti-Skid	15.25	14.50	.....	18.80	10.80	21.85	28.45	.....	.....	28.85	29.35	20.80	31.50	28.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Strongheart Tread	.....	16.40	.....	21.35	22.45	24.55	.....	.....	.....	33.50	24.10	35.90	36.65	.....	38.95	.....	47.15	48.75	50.95	51.70	53.85	57.85	.....	61.25	.....	.....
	Hartford Cord	.....	.....	.....	.....	.....	39.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	.....
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	.....
HAWKEYE	Plain	13.42	14.47	.....	17.88	.....	21.12	.....	.....	.....	27.83	29.15	30.80	31.30	.....	33.28	.....	40.70	41.53	43.34	44.06	45.93	50.38	51.32	53.13	.....	.....
	Non-Skid	14.80	15.90	.....	19.97	.....	23.60	.....	.....	.....	31.52	32.12	33.83	34.54	.....	36.69	.....	44.39	45.49	47.41	47.91	49.72	55.88	56.82	58.53	.....	.....
	Ribbed Tread Non-Skid	19.47	20.96	.....	26.57	.....	30.75	.....	.....	.....	40.70	41.53	43.78	44.61	.....	46.59	.....	51.81	54.07	57.09	61.77	62.76	68.81	71.83	73.48	.....	.....
	Red Tubes	3.25	3.35	.....	4.00	4.25	4.05	4.35	.....	.....	5.40	5.55	5.75	5.90	6.00	6.10	.....	7.15	7.20	7.30	7.50	7.70	8.60	8.80	8.90	.....	.....
	Gray Tubes	2.80	2.90	.....	3.45	3.60	3.65	3.70	.....	.....	4.70	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.45	6.55	6.65	6.75	7.70	7.80	8.00	.....	.....

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
HENDRIE	Plain	16.10	16.65	18.00	19.90	21.30	22.30	24.95	.....	29.00	29.55	30.65	31.35	32.05	33.15	33.40	40.70	41.45	42.15	43.80	44.35	45.85	52.35	53.50	56.75	69.60	72.20
	Non-Skid	19.20	20.20	21.30	24.15	24.70	26.75	29.25	.....	33.05	34.20	35.10	36.25	37.05	38.05	38.65	46.55	47.25	48.05	51.60	55.30	54.20	61.90	62.45	63.75	78.40	85.25
	California Non-Skid	22.05	23.15	24.40	27.80	28.35	31.90	33.60	.....	37.95	39.35	40.30	41.70	42.55	43.85	44.50	53.50	54.40	55.20	59.30	60.10	62.95	71.10	71.70	73.30	90.15	98.00
	Hendrie Gray Tube	3.45	3.65	4.05	4.25	4.40	4.45	4.75	.....	5.80	5.90	6.05	6.25	6.45	6.55	6.70	7.65	7.80	7.85	8.00	8.25	8.35	9.40	9.65	9.80	10.80	11.00
	California Red Tube	4.35	4.40	4.50	5.30	5.35	5.40	5.70	.....	6.70	6.90	7.00	7.15	7.30	7.45	7.60	9.20	9.40	9.65	9.85	10.05	10.30	11.65	11.75	12.00	12.60	12.75
HIGHWAY	Non-Skid	qs14.85	qs14.30	.....	qs18.35	.....	c21.75	.....	.....	.....	qs28.50	qc29.20	c30.40	c31.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
HOOD	Plain	20.30	20.80	22.35	27.50	29.45	30.95	33.10	.....	.....	36.20	36.85	37.55	38.50	39.60	40.65	53.00	53.80	55.95	57.40	58.50	59.85	68.85	70.20	71.35	91.50	92.50
	Non-Skid	24.30	24.85	27.00	31.50	34.15	35.45	37.95	.....	.....	43.75	44.65	45.85	46.75	48.95	51.45	61.05	61.95	62.60	63.90	64.50	65.75	76.30	77.40	79.00	96.50	100.65
	Ribbed Tread	24.00	24.55	.....	31.00	33.60	34.90	.....	.....	.....	42.90	43.75	44.95	45.80	.....	.....	60.05	60.95	61.60	62.90	63.50	.....	75.30	76.40	78.00	95.55	99.65
	Puritan Plain	qs.....	qs16.75	.....	qs19.00	qs20.35	21.45	c24.20	c.....	.....	qs28.90	c29.70	c30.45	c31.15	c32.30	c33.45	.....	c40.55	c41.75	c43.30	c44.00	c45.70	c51.15	cs 52.95	c53.75	.....	.....
	Puritan Gripper Non-Skid	qs.....	qs18.95	.....	qs21.85	qs23.50	25.25	c28.85	c.....	.....	qs35.30	c35.75	c36.20	c36.85	c37.65	c39.05	.....	c47.80	c48.85	c50.50	c51.15	c52.65	c58.50	cs 60.25	c61.45	.....	.....
	Hood Red and Gray Tubes	3.85	4.00	4.50	4.75	4.90	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.60	9.45	9.60	9.75	11.20	11.75
	Puritan Red and Gray Tubes	3.40	3.45	.....	4.05	4.20	4.40	4.80	5.20	5.40	5.15	5.25	5.35	5.50	5.90	6.30	6.85	6.95	7.05	7.15	7.25	7.60	8.30	8.45	8.60	10.00	11.00
HOWE	Ribbed Tread	.....	qs20.85	.....	qs25.20	.....	.....	.....	.....	.....	qs37.35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	.....	.....	.....	.....	.....	qc32.90	.....	.....	.....	.....	qc42.35	qc43.45	c44.75	.....	qc49.20	c52.20	qc53.20	c55.50	c58.00	c60.75	.....	c69.00	c72.00	c73.55	.....	.....
	Gray Tubes	2.90	3.00	3.20	3.50	3.60	3.75	3.95	4.25	4.70	4.75	4.85	5.00	5.15	5.40	5.50	6.10	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	9.20	9.45
	Red Tubes	3.55	3.65	3.80	4.35	4.40	4.55	4.80	5.00	5.55	5.65	5.80	5.90	6.00	6.20	6.30	7.65	7.80	8.00	8.25	8.35	8.55	9.70	10.10	10.25	10.85	11.00
INDIANA	Plain	13.50	14.00	18.25	17.90	19.55	21.10	23.80	.....	.....	27.85	28.35	30.00	30.45	31.65	37.90	.....	40.85	41.75	43.25	43.95	53.75	50.90	51.75	53.65	.....	.....
	Button and Traction Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	.....	.....	31.50	32.05	33.90	34.50	36.30	43.40	.....	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	3.95	.....	.....	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	.....
	Brown Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	.....
KELLY-SPRINGFIELD	Plain	qs21.90	qs20.95	.....	25.45	s28.20	29.90	32.50	s42.00	s44.95	s35.00	36.30	37.65	38.95	40.10	41.35	s56.20	s46.35	47.95	49.40	50.75	52.10	58.95	60.65	62.15	s81.05	s93.10
	Driving Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs42.50	c43.70	c44.95	c46.20	c48.65	c51.05	c62.60	c53.45	c55.45	c58.05	c63.95	c65.10	c72.20	c75.55	c76.95	.....	cs100.60
	Kant-Slip Tread	qs26.55	qs25.00	.....	qs31.30	qs32.30	35.70	c38.80	.....	.....	s43.15	c44.55	c45.90	c47.50	c49.05	c51.80	c62.85	c53.70	c55.65	c59.00	64.05	c65.40	c72.85	75.65	77.45	cs96.35	cs112.05
	Red Tubes	3.65	3.75	4.00	4.80	4.95	5.15	5.45	5.85	5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80	8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
KNIGHT	Blackstone Non-Skid	.....	15.85	.....	20.20	21.55	23.85	.....	.....	.....	31.85	32.40	34.25	34.85	.....	37.30	.....	42.15	42.50	44.20	44.70	.....	54.50	.....	57.35	.....	.....
	Knight Plain	.....	22.55	.....	27.95	30.05	30.80	33.45	.....	.....	37.20	38.45	.....	41.05	.....	43.25	.....	47.40	48.75	50.00	52.20	54.50	61.00	62.25	64.75	.....	.....
	Knight Non-Skid	.....	25.00	.....	31.30	32.30	35.70	38.80	.....	.....	43.15	44.55	45.90	47.50	.....	51.80	.....	53.70	55.65	59.00	64.05	65.40	72.85	75.65	77.45	96.35	112.05
	Blackstone Tubes	.....	3.10	.....	3.60	3.75	3.80	4.05	.....	.....	4.80	4.95	5.10	5.30	.....	5.55	.....	6.35	6.40	6.60	6.70	6.90	7.75	7.90	8.05	.....	.....
	Knight Red Tubes	.....	3.70	.....	4.60	4.65	4.80	.....	.....	.....	5.95	6.15	6.30	6.45	6.90	6.95	7.90	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
KOKOMO	Plain	qs15.25	qs15.85	.....	qs20.60	.....	q23.80	.....	.....	.....	qs31.40	.....	c33.65	c34.35	.....	c36.70	.....	.....	c46.35	c48.40	c49.25	c51.25	.....	.....	c58.50	.....	.....
	Gridiron Non-Skid	qs16.00	qs16.65	.....	qs21.50	.....	q25.20	.....	.....	.....	qs33.10	.....	c35 25	c36.10	.....	c38 50	.....	.....	c48.75	c50.90	c51.60	c53.75	.....	.....	c61.50	.....	.....
	Standard Gray Tubes	2.90	3.05	3.25	3.60	3.80	3.85	4.05	4.25	.....	4.75	4.80	5.00	5.15	5.30	5.45	.....	.....	6.20	6.35	6.60	6.85	7.80	8.10	8.35	8.80	.....
	Standard Red Tubes	3.25	3.35	3.50	4.05	4.25	4.30	4.50	4.75	.....	5.30	5.40	5.50	5.65	5.95	6.10	.....	.....	7 00	7.10	7.35	7.60	8.65	8.80	9.00	9.70	.....
	Everlaster Gray Tubes	3.45	3.55	3.95	4.30	4.45	4.50	5.00	5.10	.....	5.60	5.65	5.85	6.05	6.20	6.45	.....	.....	7.35	7.55	7.80	8.05	9.15	9.30	9.50	10.85	.....
	Everlaster Red Tubes	3.75	3.90	4.45	4.80	4.95	5.05	5.25	5.65	.....	6.20	6.30	6.50	6.65	6.90	7.15	.....	.....	8.10	8.50	8.60	8.95	10.15	10.20	10.50	12.05	.....
LEE	Standard Plain	15.75	14.25	19.00	18.30	19.40	21.45	26.75	30.25	33.00	28.10	29.00	30.00	31.05	35.55	34.20	40.70	40.50	41.70	43.15	43.85	46.65	50.90	51.75	53.65	73.05	73.80
	Standard Non-Skid	16.50	15.70	21.70	20.15	21.35	23.60	29.85	33.40	36.50	30.90	31.90	33.00	34.15	39.35	37.60	44.10	44.55	45.85	47.45	48.25	51.30	56.00	56.80	59.00	88.00	88.75
	Puncture Proof Plain	26.95	26.90	26.80	33.60	34.50	35.75	40.85	43.25	43.65	41.05	44.75	46.80	48.35	52.85	53.75	53.25	54.35	56.75	58.85	60.05	62.25	71.45	72.50	73.50	81.60	83.85
	Puncture Proof Non-Skid	29.60	28.25	33.20	34.70	35.90	37.85	44.45	46.75	47.95	43.35	47.75	50.05	51.35	57.90	58.65	61.40	59.20	60.90	63.10	64.85	70.05	76.55	77.90	79.65	95.65	98.00
	Gray Tubes	3.10	3.05	3.40	3.75	4.00	4.10	4.55	4.80	4.95	5.00	5.10	8.25	5.40	5.80	6.00	6.50	6.15	6.25	6.45	6.65	6.90	7.80	7.95	8.10	9.25	9.45
	Red Tubes	3.40	3.35	3.80	4.20	4.35	4.45	5.05	5.35	5.50	5.45	5.55	5.70	5.90	6.45	6.50	7.20	6.80	7.00	7.15	7.35	7.65	8.70	8.85	8.95	10.30	10.50
McCREARY	Plain Tread	15.50	16.45	19.90	21.60	23.30	25.60	.....	.....	.....	33.65	34.50	35.50	36.95	.....	37.60	.....	46.50	48.30	50.60	51.20	53.45	48.65	.....	61.60	.....	.....
	Non-Skid	17.50	17.95	.....	23.60	25.45	27.95	.....	.....	.....	36.85	36.95	38.95	39.85	.....	43.25	.....	.....	51.10	53.75	54.55	56.85	64.75	.....	67.05	.....	.....
	Gray	3.05	3.10	3.55	3.70	3.90	4.05	4.30	.....	.....	5.00	5.25	5.45	5.60	.....	5.90	.....	6.90	7.00	7.20	7.55	7.70	8.30	.....	8.75	.....	.....
	Red	3.85	4.00	4.60	4.85	4.90	5.10	5.40	.....	.....	6.40	6.60	6.90	7.00	.....	7.50	.....	8.35	8.50	8.70	9.00	9.20	10.25	.....	10.55	.....	.....
McGRAW	Congress Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	.....	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	.....	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Congress Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Imperial Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Imperial Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	qs42.90	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	McGraw Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	McGraw Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Pullman Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Pullman Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	7.10	7.15	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	6.50	6.30	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
McNAULL		.....	.....	.....	.....	.....	.....	.....	.....	.....	32.83	.....	42.69	.....	.....	.....	.....	54.71	.....	58.06	.....	62.42	70.65	74.44	74.44	.....	.....
	Tubes	.....	3.90	.....	5.00	.....	5.39	5.75	.....	.....	6.38	6.49	6.71	6.93	7.04	7.20	.....	8.42	8.69	8.85	9.18	9.46	10.39	10.61	11.00	12.59	12.81
MANSFIELD	Plain	14.25	13.95	17.20	18.70	20.35	21.40	23.40	.....	24.15	27.10	28.70	29.00	30.00	33.90	31.90	.....	.....	40.50	41.75	43.00	44.20	48.60	56.40	50.65	.....	.....
	Non-Skid	15.90	15.45	.....	21.15	22.35	23.75	26.25	.....	.....	30.15	31.10	32.15	33.35	37.65	35.50	.....	.....	45.00	46.25	47.50	48.75	55.00	.....	61.90	.....	.....
	Gray Tubes	3.00	3.05	3.55	3.75	3.90	4.10	4.75	.....	5.20	4.85	5.00	5.20	5.40	5.90	5.70	.....	.....	6.50	6.60	6.85	7.05	8.05	8.60	8.30	.....	.....
	Red Tubes	3.70	.....	.....	4.40	4.60	4.80	5.50	.....	6.20	5.90	6.05	6.20	6.35	7.00	6.80	.....	.....	7.95	8.10	8.30	8.55	9.60	10.30	9.90	.....	.....
MARATHON	Runner Thread	.....	qs20.05	.....	qs24.40	qs25.45	28.45	c30.20	.....	.....	qs36.05	c37.25	c38.40	c39.60	c40.75	c41.95	qc51.85	.....	c55.15	c56.75	c58.40	c60.50	c67.90	c69.90	c71.95	cs85.00	cs87.25
	Angle Thread	qs19.20	qs20.55	.....	qs25.05	qs26.10	29.15	c31.00	.....	.....	qs37.00	c38.20	c39.40	c40.60	c41.80	c43.00	qc53.20	c54.90	c56.55	c58.20	c59.85	c61.55	c69.65	c71.70	c73.75	.....	cs89.45
	Heavy Red Tube	2.90	3.10	.....	4.05	4.15	4.30	4.60	.....	.....	5.60	5.80	6.00	6.20	6.40	6.60	7.35	7.60	7.80	8.05	8.30	8.55	10.30	10.60	10.90	13.05	13.40
	Gray Tube	2.60	2.80	.....	3.70	3.80	3.95	4.15	.....	.....	5.15	5.30	5.50	5.65	5.85	6.05	6.75	6.95	7.15	7.40	7.60	7.85	9.35	9.65	9.90	11.85	12.15
	Cord Runner	.....	.....	.....	qs32.35	qs33.15	34.55	.....	.....	.....	qs42.50	c43.95	c45.15	c46.35	.....	.....	qc49.50	c50.80	c52.10	c53.35	c54.05	.....	c64.80	.....	c67.90	.....	cs82.30
	Cord Angle Non-Skid	.....	.....	.....	qs34.05	qs34.90	36.40	.....	.....	.....	qs44.75	c46.25	c47.50	c48.80	.....	.....	qc52.10	c53.45	c54.85	c56.15	c57.55	.....	c68.20	.....	c71.50	.....	cs86.65

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5]	37x5½	38x5½
MARION	Plain	qs13.20	qs14.30		qs18.05						qs28.60		c30.80	c32.55													
	Ribbed		qs15.25		qs19.50	c20.00	c22.00				qs30.80	c31.50	c33.50	c34.25	c35.90	c36.50			c46.00	c47.30	c47.85	c49.50	c55.00	c56.65	c58.30		
	Non-Skid	qs14.95	qs15.95		qs20.40		c23.90				4.75	5.00	5.20	5.30	5.45	5.55			6.40	6.60	6.75	7.10	8.10	8.20	8.25		
	Gray	2.90	3.00		3.60	3.70	3.75				5.20	6.25	6.50	6.65	6.90	7.10			7.80	8.40	8.60	9.25	9.50	9.70	9.90		
	Red		3.80		4.50	4.75	4.85																				
MASON	Plain Tread	14.10	14.90		19.00	20.40	22.15				29.10	29.60	31.35	31.85		33.65		40.85	41.75	43.25	43.95	45.70	50.90	51.75	53.65		
	Ribbed Tread	14.85	15.95		20.35	21.95	23.95	27.25			30.20	30.70	32.60	33.10	34.95	35.35	42.70	44.50	45.05	46.80	47.45	49.25	56.10	57.95	59.95		
	Non-Skid	15.40	16.50		21.20	22.65	24.80	28.05			31.50	32.05	33.90	34.50	36.30	36.90	44.55	46.35	46.75	48.60	49.15	51.05	59.95	61.05	63.10		
	Gray Tubes	3.15	3.20		3.80	3.95	4.15	4.35			5.05	5.35	5.55	5.70	5.90	6.00	6.90	7.05	7.15	7.35	7.65	7.80	8.50	8.70	8.95		
	Red Tubes	3.65	3.75		4.55	4.70	4.85	5.10			6.05	6.20	6.50	6.75	6.95	7.10	7.75	7.85	8.05	8.20	8.45	8.65	9.50	9.75	9.90		
MICHELIN	Plain Tread	qs14.95	qs15.60		qs21.50	qs22.60																					
	Universal Tread				s22.50		c25.40	c27.10			s31.50	c35.15	c35.40	c36.65	cs38.25	c39.80	qc44.75	46.50	c47.60	c50.10	c51.15	cs52.95	c58.40	cs59.80	c60.50		
	Tubes	3.55	3.70		4.25	3.70	4.40	4.80		5.55	5.10	5.80	5.30	6.20	5.60	6.65	7.60	6.80	8.00	7.20	8.45	7.70	9.70	10.10	10.25	11.30	11.30
MOHAWK	Plain	qs18.70	qs19.65		24.00	qs26.55	28.05	c30.65			qs35.35	c36.50	37.55	38.90	c40.20	42.45		c45.70	47.85	49.85	52.60	c53.80	c59.65	s62.00	c63.45	cs78.95	
	Non-Skid	qs22.55	qs23.70		30.00	qs31.10	34.45	c37.55			qs41.60	43.10	c44.20	45.90	c47.45	50.15	52.90	c54.05	56.45	58.90	61.85	c63.35	c70.35	s73.35	75.00	cs93.10	cs96.65
	Ribbed Tread		qs21.10		qs25.95		qc30.35				qs38.45	qc39.65	qc40.85	c42.05			48.10		c51.65	qc53.85	c56.95		c64.90		c68.45		
	Pure Gum and Red Tubes	3.40	3.80		3.80	4.70	4.90	5.20			5.75	5.85	6.10	6.25	6.35	6.55	7.35	7.65	7.85	8.00	8.25	8.60	9.35	9.65	9.95	11.40	11.60
	Keaton				qs31.55		qc36.35				qs43.85	qc45.40	qc46.60	qc48.35			qc55.55		c60.00	qc61.10	c64.45		c74.45		c78.05		
MONARCH	Gray Tubes	3.15	3.35		4.15	4.20	4.25				5.25	5.35	5.50	5.65		6.10		6.80	6.90	7.15	7.35	7.60	8.60	8.70	8.95		
	Red Tubes	3.45	3.70		4.65	4.70	4.75				5.85	5.95	6.10	6.30		6.75		7.50	7.75	7.90	8.10	8.45	9.60	9.75	9.85		
NABOB	Plain Tread	qs19.95	qs20.95		s25.45	qs28.20	29.90	32.50			q35.00	c36.30	c37.65	c38.95	c40.10	c41.35		c46.35	c47.95	c49.40	c50.75	c52.10	c58.95	c60.65	c62.15	c81.05	c93.10
	Safety Traction Non-Skid		qs25.00		s31.30	qs32.30	35.70	38.80			q43.15	c44.55	c45.90	c47.50	c49.05	c51.80		c53.70	c55.65	c59.60	c64.05	c65.40	c72.85	c75.65	c77.45	c96.35	c112.05
	Tubes	3.65	3.75		4.60	4.95	5.15	5.45			6.10	6.20	6.40	6.65	6.75	6.90		8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
NATIONAL	Plain	12.30	12.00	16.05	15.60	16.40	18.25	21.30			23.95	24.40	25.55	26.10	29.80	30.60		34.05	35.10	36.75	37.35	42.75	41.95	47.50	44.40		
	Non-Skid	12.90	12.65	16.85	16.30	17.25	19.15	22.30			25.05	25.60	26.70	27.40	31.35	32.15		35.75	36.95	38.55	39.25	44.90	44.10	49.95	46.65		
	Gray Tubes	3.25	3.20	3.60	3.95	4.00	4.05	4.80			5.00	5.10	5.25	5.40	6.10	6.30		6.45	6.60	6.80	7.00	8.00	8.20	9.05	8.55		
	Red Tubes	3.55	3.50	4.00	4.40	4.45	4.50	5.30			5.60	5.70	5.85	6.00	6.80	6.95		7.15	7.35	7.50	7.75	8.80	9.15	10.00	9.40		
NEEDHAM	Plain	qs13.20	qs14.30		18.15	19.25	21.20	c23.80			28.35	c29.00	c30.40	c30.95	c32.25	c32.75		c39.90	c41.25	c43.10	c43.65	c45.30	c49.05	c49.70	c51.60	s71.45	cs73.20
	Non-Skid				20.90	21.90	24.30	c27.25			32.85	c33.35	c34.85	c35.50	c36.95	c37.45		c46.55	c47.50	c49.45	c50.00	c51.90	c56.20	c56.95	c59.15	s81.85	cs83.90
	Tubes	2.80	2.90		3.30	3.40	3.45	3.60			4.55	4.70	4.85	4.95	5.05	5.15		6.10	6.20	6.30	6.40	6.60	7.55	7.70	7.85	8.45	8.55
NEWCASTLE	Plain		14.75		19.20	21.10	22.45	23.50			29.45	29.95	31.40	32.00	36.60	37.60			43.15	45.20	45.90	52.45	51.55	58.40	55.60		
	Non-Skid		16.30		21.25	23.90	24.50	26.60			30.80	31.50	32.80	33.70	38.50	39.50			45.40	47.40	48.25	55.20	54.10	61.25	57.35		
	Shenango Non-Skid				28.15		32.15						c41.30	42.75						c53.10	c57.65		c65.55		cs69.70		
	Pure Gum Gray Tubes		3.20		4.10	4.25	s4.40	4.70			5.20	5.30	5.50	5.65	5.75	5.90			7.10	7.25	7.50	7.75	8.50	8.70	9.00		
NORWALK	Plain		s21.60		s28.00								qc44.00	c44.85						qc62.10	cs63.00				c73.45		
	Non-Skid		s22.75		s29.45	s31.10	c33.85				s43.05	c43.85	c46.10	c47.15		cs50.10			c62.40	c65.15	c66.15	cs68.90	c72.85	cs73.85	c77.15		
	Gray Tubes	3.30	3.35	3.95	4.15	4.25	4.40	5.20	5.30		5.40	5.55	5.70	5.85	6.25	6.30	7.15		7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.75	6.00		5.95	6.15	6.30	6.45	6.90	6.95	7.90		7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
PALMER	Tubes		6.35		6.60		7.00				8.45	8.80	9.15	9.45	9.80	10.10	10.25	11.10	11.40	11.75	12.25		13.60	13.80	14.15		
PEARCE	Morton Plain	11.00	11.85		15.35	16.20	17.65	20.00			24.00	24.95	25.20	25.75	26.95	27.35	33.10	34.10	34.20	35.75	36.20	39.85	43.95	44.55	45.30		
	Non-Skid	12.00	12.85		16.95	18.00	19.65	22.40			27.10	27.90	28.50	29.50	30.20	31.10	36.00	38.00	39.00	40.15	41.40	42.00	47.20	48.50	50.00		
	Germantown Cord Plain		17.50		21.95	22.25	24.00	39.00			33.15	34.75	35.95	36.10	40.00	43.50	38.15	45.25	46.75	48.75	50.50	52.00	56.50		58.15		
	Non-Skid		18.25		23.75	25.00	27.30	41.50			36.35	37.10	38.95	39.70	42.35	49.00	45.00	50.20	51.90	54.25	55.00	57.30	63.80		64.75		
	Red Tubes	3.25	3.45		3.95	4.10	4.25	4.50			5.35	5.45	5.75	5.95	6.20	6.40	6.50	6.75	7.45	7.55	7.80	8.05	9.00	9.20	9.30		
PEERLESS	Non-Skid		16.80		21.35	23.00	24.95				33.30	34.00	35.70	36.45					48.40	50.60	51.35				62.95		
	Gray Tubes		3.05		3.45	3.65	3.80				4.90	5.05	5.25	5.35					6.50	6.75	6.90				8.40		
	Red Tubes		3.40		3.95	4.15	4.20				5.35	5.50	5.70	5.95					7.25	7.40	7.55				9.10		
PENNSYLVANIA	Bar O Circle	12.80	13.45		17.60	19.50	20.65	24.00			27.00	27.40	28.70	29.40	33.50	34.45		38.40	39.70	41.40	42.05	48.15	47.35	53.60	50.10	65.15	67.80
	Vacuum Cup	17.15	17.70	23.50	22.65	24.20	26.75	30.55	38.70	42.50	35.65	36.30	38.40	39.10	41.15	41.80	50.50	52.55	52.90	55.05	55.65	57.80	67.85	69.15	71.45	86.65	90.20
	Ebony Cup	15.45	16.00	21.20	20.40	21.80	24.10	27.50	34.80	38.25	32.10	32.65	34.55	35.20	37.00	37.60	45.45	47.30	47.65	49.55	50.10	52.05	61.10	62.20	64.30	78.00	81.25
	Ton-Tested Gray Tubes	2.80	2.90	3.15	3.40	3.55	3.70	4.05	4.40	4.90	4.95	5.05	5.25	5.45	5.55	5.75	6.50	6.65	6.70	6.80	6.95	7.25	8.15	8.25	8.40	8.80	9.00
PERFECTION	Plain	18.00	19.25		23.20	24.65	27.50	29.75			32.10	34.10	35.20	36.40	37.60	38.85	40.10	41.35	42.70	43.90	45.25	46.45	52.60	53.85	54.00	72.70	76.00
	Non-Skid	21.25	22.25		27.95	28.90	32.10	34.65			38.75	40.75	41.15	42.45	45.90	47.40		48.30	50.00	52.50	55.00	57.35	65.20	67.50	69.00	85.75	87.55
	Gray Tubes	3.20	3.30	3.50	4.20	4.35	4.50	4.80	5.10	5.25	5.35	5.45	5.65	5.80	5.90	6.05	6.85	7.10	7.30	7.45	7.70	7.95	8.75	8.95	9.25	10.55	10.75
	Red Tubes	3.40	3.55	3.70	4.50	4.60	4.85	5.30	5.60	5.65	5.75	5.85	6.10	6.25	6.35	6.50	7.45	7.60	7.80	7.95	8.20	8.45	9.30	9.50	9.80	11.10	11.35
PHARIS	Plain	13.10	13.85	17.50	17.90	18.65	20.55	22.90			27.60	28.05	29.25	29.80	31.00	31.50	45.40		40.00	41.55	42.10	43.55	47.25	47.85	49.70		
	Non-Skid		14.85		19.15	19.95	22.00	24.60			29.50	30.05	31.40	31.90	33.20	33.75	47.75	42.20	42.80	44.50	45.00	46.65	50.60	51.30	53.15	83.05	73.70
	Gray Tubes	3.15	3.35	3.45	3.75	3.80	3.95	4.15			5.25	5.35	5.45	5.55	5.80	5.90	6.75	6.90	7.00	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.70
	Red Tubes	3.50	3.65	3.75	4.20	4.25	4.30	4.70			5.80	5.90	6.10	6.20	6.40	6.50	7.60	7.70	7.75	7.85	8.10	8.25	9.40	9.70	9.80	10.50	10.65
PORTAGE	Plain	s14.00	s15.10	s16.75	s19.60	s20.70	22.45	25.50	s27.00	s28.45	s30.05	30.60	32.10	32.85	34.35	35.00	s43.10	s44.55	43.65	45.75	46.40	48.30	52.20	s53.00	55.35	s79.70	
	Daisy Non-Skid	s16.20	s17.45	s19.30	s22.45	s23.70	25.90	29.35		s32.80	s34.45	35.15	36.95	37.75	39.55	40.30	s49.75	51.15	50.25	52.50	53.35	55.60	60.05	s61.00	63.50	s87.70	s89.55
	Gray or Red Tubes	3.20	3.45	3.75	4.20	4.30	4.45	4.75	4.95	5.50	5.65	5.90	6.10	6.25	6.45	6.60	7.35	7.50	7.65	7.80	8.10	8.25	9.05	9.30	9.40	10.25	10.40
PORTER	Giant	qs15.00	qs16.45		qs21.50	qs22.65	24.35	c26.50			qs31.65	c32.35	c33.30	c34.35	c35.25	c36.30	qc44.00	c45.25	c46.25	47.70	c48.80	c50.00	c56.10	cs57.20	c59.25		
	Non-Skid	qs16.00	qs17.55		qs22.85	qs24.25	26.30	c27.95			qs34.95	c35.45	c36.60	c37.40	c39.45	c40.00	qc47.75	c49.00	c49.75	51.15	c52.55	c53.90	c59.95	cs61.60	c62.95		
	Gray Tubes	2.85	3.00		3.60	3.70	3.75	3.95			4.75	4.95	5.05	5.25	5.45	5.60	6.20	6.35	6.50	6.60	6.75	6.95	7.85	8.00	8.15		
	Red Tubes	3.15	3.40		3.95	4.10	4.20	4.40			5.30	5.45	5.65	5.85	5.95	6.15	7.00	7.15	7.25	7.35	7.50	7.75	8.75	8.90	9.00		
QUAKER	Plain	s18.40	s19.45	s21.00	24.30	s25.45	29.00	31.20			s36.35	36.85	38.40	39.05	c40.75	41.40	qs49.50		53.00	c55.00	55.70	c57.80	c62.70	63.35	c65.90	cs85.60	cs89.15
	T.T.T. Non-Skid	s19.80	s21.45	s23.30	27.00	s28.05	32.00	34.80			s40.25	41.00	42.65	43.45	c45.30	46.00	qs52.10		55.80	c58.00	58.60	c60.70	c65.95	66.70	c69.30	cs90.20	cs93.90
	Gray Tubes	3.20	3.35	3.50	3.75	3.95	4.00	4.20	4.35	5.00	5.10	5.40	5.50	5.60	5.80	5.90	6.80	7.00	7.05	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.85
	Red Tubes	3.50	3.70	3.90	4.15	4.35	4.40	4.60	4.85	5.50	5.55	5.95	6.05	6.15	6.40	6.50	7.55	7.70	7.75	7.85	8.00	8.20	9.40	9.50	9.80	10.40	10.90

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
RACINE	Plain	14.20	15.20	17.70	18.70	19.75	21.75	26.25	28.45	30.00	28.70	29.25	31.25	32.05	32.90	33.45	39.60	40.45	41.75	42.35	43.75	46.15	51.50	53.00	54.50	68.95	71.25
	Country Road	16.55	17.75	20.85	21.55	22.60	25.50	28.75	33.00	35.15	33.00	34.75	36.80	37.35	37.70	38.05	47.60	48.40	49.10	51.35	52.15	54.20	62.00	63.50	65.00	81.40	83.60
	Ribbed Cord	.....	.....	.....	.....	.....	39.80	.....	.....	.....	48.80	50.50	51.90	53.25	.....	.....	56.95	58.35	59.95	61.35	62.90	.....	74.60	76.30	78.00	92.50	94.60
	Non-Skid Cord	.....	.....	.....	.....	.....	42.35	.....	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.35	65.40	67.00	.....	79.40	81.40	83.20	98.60	100.85
	Gray Tubes	2.85	3.00	3.25	3.50	3.60	3.75	3.90	4.15	4.60	4.70	4.90	5.00	5.20	5.40	5.50	6.20	6.35	6.45	6.55	6.75	6.90	7.85	7.95	8.10	8.45	8.65
	Red Tubes	3.40	3.70	3.95	4.05	4.30	4.40	4.60	4.85	5.40	5.50	5.65	5.95	6.10	6.25	6.50	7.20	7.45	7.50	7.70	7.80	8.05	9.15	9.30	9.40	9.90	10.00
RACINE HORSESHOE	Plain	qs16.00	qs16.50	qs17.50	20.50	qs21.00	22.50	23.50	.....	qs28.50	qs26 50	28.50	29.00	29.50	31.00	31.50	qc36.50	qc36.50	36.50	38.00	39.00	40.00	44.00	45.00	46.00	cs65.00	cs66.00
	Non-Skid	qs17.00	qs17.50	qs19.50	21.50	qs22.00	24.00	27.00	.....	qs32.50	qs31.00	31.50	32.00	32.50	34.50	35.50	qc40.00	qc41.00	42.00	43.00	44.00	45.00	51.00	52.00	52.50	cs69.00	cs70.00
	Cord Non-Skid	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	qc46.50	qc47.50	48.50	.....	.....	.....	qc55.50	56.50	57.50	58.50	.....	68.50	.....	70.50	.....	cs88.50
	Gray Tubes	3.00	3.05	3.40	3.75	3.80	3.85	4.00	.....	4.70	4.75	4.85	5.00	5.15	5.45	5.50	6.15	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	8.75	9.25
	Red Tubes	.....	3.40	.....	4.25	4.35	4.45	.....	.....	.....	5.45	5.50	5.60	5.75	.....	6.25	.....	.....	7.50	7.75	7.80	7.90	8.80	8.95	9.25	9.50	9.75
RECORD	Ribbed Tread	.....	qs14.30	.....	qs18.35	.....	qc21.75	.....	.....	.....	qs28.50	qc29.20	c30.40	c31.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
REPUBLIC	Plain	qs14.15	qs15.20	qs19.30	19.30	qs20.75	22.50	25.65	s32.60	s34.45	s30.05	30.70	32.25	32.95	34.45	35.00	41.05	c42.30	43.75	45.80	46.40	48.35	53.65	54.35	56.85	s79.05	s78.25
	Staggard Non-Skid	qs16.60	qs17.70	qs22.50	22.55	qs24.40	26.40	29.95	s38.40	s40.25	s35.20	35.90	37.70	38.50	40.30	40.90	48.10	c49.50	51.15	53.60	54.30	56.60	62.75	63.65	66.55	92.50	89.00
	Gray Tubes	2.90	2.95	3.20	3.45	3.60	3.75	4.15	4.40	4.90	5.05	5.20	5.35	5.55	5.70	5.85	6.55	6.75	6.80	6.95	7.05	7.35	8.25	8.40	8.50	8.95	9.10
	Blackline Red Tubes	3.35	3.55	3.85	4.15	4.35	4.40	4.65	4.90	5.45	5.60	5.70	5.95	6.20	6.40	6.50	7.20	7.30	7.60	7.70	7.90	8.15	9.15	9.30	9.50	9.90	10.20
REVERE	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Anti-Skid Casings	15.25	14.50	.....	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	9.40
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	.....	.....	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	11.25
	Granite Tread	.....	16.40	.....	21.35	22.45	24.55	.....	.....	.....	33.50	34.10	35.90	36.65	.....	38.95	.....	47.15	48.75	50.95	51.70	53.85	57.85	.....	61.25	.....	.....
	Cord Casings	.....	.....	.....	.....	.....	39.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83 50
SAVAGE	Plain	qs14.15	qs14.35	.....	qs18.25	qs19.60	21.35	24.20	c30.90	s32.50	qs28.45	29.05	30.45	31.20	32.60	33.10	.....	s40.05	c41.35	c43.30	c43.95	c45.80	c50.75	c51.55	c53.80	.....	cs72.00
	Non-Skid	qs16.50	qs16.80	.....	qs21.35	qs23.00	24.95	28.35	c35.75	s37.50	qs33.30	34.00	35.70	36.45	38.10	38.70	qc45.45	s46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c59.35	c62.95	.....	cs81.35
	Grafinite Tubes	3.75	3.90	.....	4.50	4.90	4.95	5.35	5.90	6.25	6.10	6.40	6.50	6.55	6.65	6.80	7.55	7.85	8.15	8.30	8.60	8.75	9.65	9.95	10.10	.....	12.05
SCHAVOIR	Gray Tubes	3.05	3.10	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.75	4.85	5.00	5.15	5.80	5.50	6.50	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	10.00	9.45
	Red Tubes	3.10	3.35	3.80	4.20	4.25	4.30	5.00	5.35	5.50	5.30	5.40	5.55	5.70	6.00	6.10	7.20	6.80	7.00	7.15	7.35	7.65	8.60	8.70	8.95	11.10	10.50
	Jumbo Red Tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.70	6.90	7.05	7.15	7.35	7.50	.....	8.40	8.80	9.05	9.20	9.40	10.90	11.10	11.25	.....	13.15
SEMPLE	Semco Red Tubes	3.60	3.75	3.90	4.50	4.60	4.75	5.05	.....	.....	6.05	6.20	6.40	6.60	6.75	6.95	7.95	8.20	8.35	8.50	8.70	8.90	9.85	10.05	10.35	11.00	11.30
SOUTHERN	Plain	qs12.80	qs13.20	.....	q17.00	qs18.10	20.10	c22.50	.....	.....	.....	qc27.25	c28.40	c29.00	c30.00	c30.45	.....	.....	.....	c41.10	c41.80	c43.10	.....	qc50.00	c51.70	.....	.....
	S Non-Skid	.....	qs14.70	.....	q19.50	.....	22.60	.....	.....	.....	28.70	qc30.10	c31.45	c32.20	.....	c33.65	cs42.60	.....	qc44.45	c46.10	c46.65	c48.25	qc54.85	.....	c57.65	.....	.....
	Red Tubes	3.45	3.70	.....	4.25	4.35	4.40	4.60	.....	.....	5.85	6.00	6.20	6.30	6.45	6.65	7.55	.....	7.75	7.90	8.00	8.20	9.15	9.30	9.45	.....	.....
SPEEDWAY	Non-Skid	.....	qs18.66	.....	qs23.33	.....	c30.00	c37.33	.....	.....	qs34.99	c36.40	c37.80	c39.20	.....	c42.00	.....	qc53.33	c53.33	c54.66	c56.00	qc59.33	qc68.60	qc70.00	qc70.00	.....	.....
	Red Tubes	4.33	4.46	.....	5.66	6.00	6.33	6.66	6.98	6.98	7.33	7.66	8.00	8.33	8.66	9.00	.....	9.69	9.85	10.08	10.40	10.77	12.00	12.66	13.33	14.66	15.33
STANDARD FOUR	Super Tread	14.10	14.70	.....	18.70	20.45	22.10	.....	.....	.....	29.10	29.65	31.35	31.85	.....	.....	.....	.....	43.65	45.20	45.95	47.80	53.20	.....	56.05	.....	.....
	Non-Skid	15.10	15.70	.....	20.00	.....	23.60	.....	.....	.....	31.55	32.10	33.90	35.40	.....	36.90	.....	.....	46.75	48.60	49.20	51.05	59.95	.....	63.10	.....	.....
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	3.95	.....	.....	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	10.80
STAR	Ribbed Tread	.....	qs22.00	.....	qs26.50	qs28.40	c30.45	.....	.....	.....	s37.50	qc39.20	qc40.50	c41.75	.....	.....	c48.90	qc50.50	c52.10	c53.70	c55.30	.....	c63.85	cs66.05	c68.25	cs86.00	.....
	All Star Non-Skid	.....	qs24.00	.....	qs20.00	.....	c32.10	.....	.....	.....	s39.70	qc41.00	qc42.25	c43.70	.....	c46.40	c50.25	qc51.85	c53.50	c55.00	c56.60	cs58.20	c66.00	cs68.20	c70.40	cs88.50	cs94.00
	Red Tubes	.....	3.65	.....	4.70	4.90	5.10	5.40	.....	.....	5.95	6.10	6.30	6.45	6.65	6.80	7.60	7.80	8.00	8.20	8.45	8.65	9.80	9.65	10.00	11.60	11.65
	Gray Tubes	.....	3.20	.....	3.85	4.90	4.05	.....	.....	.....	5.10	6.10	5.35	5.50	.....	.....	.....	.....	6.55	6.80	7.00	.....	.....	.....	.....	.....	.....
STERLING	Sterling High Bar Non-Skid	qs17.46	q20.80	.....	qs26.67	28.32	cs29.81	.....	.....	.....	34.76	c43.64	c45.10	c46.55	.....	s49.46	s58.19	c59.65	c61.10	c62.56	c64.00	c65.46	c72.73	c74.20	c77.10	s81.46	s84.38
	Sterling Seamless Red Tubes	3.71	3.97	4.28	5.40	5.50	5.66	6.05	6.31	6.29	6.47	6.59	6.83	7.02	7.14	7.38	8.11	8.40	8.65	8.89	9.13	9.44	10.46	10.70	10.89	12.46	12.83
STRONGHOLD	Plain	.....	17.20	.....	22.05	23.50	25.45	28.55	.....	.....	32.60	33.30	34.65	35.35	37.10	37.70	.....	41.15	42.35	43.70	44.90	46.15	52.30	53.85	55.30	.....	.....
	Stronghold Non-Skid	.....	18.85	.....	24.15	25.45	27.75	31.25	.....	.....	35.70	36.25	37.95	38.70	40.60	41.15	45.50	47.10	48.75	50.35	54.20	56.60	60.70	61.45	63.90	.....	.....
	Gray Tubes	.....	3.60	.....	4.40	4.45	4.55	4.85	.....	.....	5.90	6.05	6.30	6.50	6.70	6.90	7.70	7.90	8.05	8.20	8.35	8.60	9.65	9.80	10.05	.....	.....
	Red Tubes	.....	3.95	.....	4.80	4.85	5.00	5.20	.....	.....	6.55	6.75	6.95	7.10	7.30	7.55	8.25	8.40	8.55	8.70	9.10	9.25	10.40	10.55	10.75	.....	.....
SWINEHART	Plain	qs14.00	qs15.10	qs19.20	s19.20	qs20.60	22.40	25.40	s28.50	.....	qs29.85	30.50	32.00	32.70	c34.25	34.75	s40.80	s42.00	43.45	c45.45	46.15	cs48.10	c53.30	s54.10	56.50	cs79.05	cs74.20
	Ribbed	qs15.70	qs16.80	qs21.35	s21.35	qs23.00	25.00	28.30	s31.70	.....	qs33.30	34.00	35.70	36.45	c38.10	38.70	s45.45	s46.90	48.40	c50.60	51.40	cs53.60	c63.50	s64.35	67.20	cs92.40	cs88.00
	Non-Skid	qs16.40	qs17.60	qs22.40	s22.40	qs24.15	26.25	29.75	s33.35	.....	qs34.90	35.70	37.45	38.30	c40.05	40.65	s47.70	s49.30	50.80	c53.15	53.95	cs56.30	c66.65	s67.60	70.55	cs97.25	cs92.65
	Tubes	2.90	3.00	3.20	3.40	3.55	3.60	3.80	3.95	.....	4.70	4.85	5.00	5.10	5.20	5.30	6.20	6.30	6.35	6.45	6.60	6.80	7.75	7.90	8.05	8.40	8.60
TEN BROECK	Plain	qs12.39	qs13.09	qs16.63	q16.56	qs17.39	19.16	21.37	.....	.....	qs25.60	25.99	27.19	27.69	28.77	29.09	.....	.....	c38.00	39.46	39.90	41.42	s46.55	s47.11	s47.68	.....	cs84.00
	Non-Skid	qs13.91	qs14.86	.....	q19.48	qs20 42	22.26	25.16	.....	qs29.21	qs30.48	31.05	32.63	33.33	34.91	35.47	.....	.....	c43.13	45.19	45.72	46.46	cs51.16	s51.98	54.14	.....	cs74.56
	Ribbed	.....	qs14.86	.....	q19.48	qs20.42	22.26	.....	.....	.....	qs30.48	31.05	32.63	33.33	.....	.....	.....	.....	43.13	45.19	.....	.....	s51.16	s51.98	.....	.....	s74.56
	Gray Tubes	3.02	3.14	3.32	3.56	3.68	3.75	3.92	4.11	4.77	4.89	5.08	5.20	5.32	5.44	5.56	6.46	.....	6.65	6.77	6.89	7.07	8.10	8.22	8.40	9.00	9.13
THERMOID	Non-Skid and Ribbed Tread	qs24.70	qs24.85	.....	qs31.25	qs33.40	c35.90	c39.00	.....	qs43.60	qs43.35	c44.85	c46.15	c47.80	48.50	c51.60	c57.50	qc55.95	c57.20	c59.65	c63.25	c65.10	c72.55	sc75.00	c77.75	sc96.05s	c103.05
	Brown and DeLuxe Red Tubes	q3.80	3.85	.....	4.90	5.00	5.15	5.45	.....	6.10	6.20	6.30	6.40	6.60	6.80	7.00	8.00	8.15	8.30	8.45	8.75	9.10	10.00	10.20	10.50	12.10	12.40
TOLIVER	Plain	17.95	18.60	23.60	22.95	24.95	qc26.90	qc29.95	.....	39.70	34.90	qc35.50	qc37.40	qc37.95	qc39.40	qc39.85	.....	.....	51.35	qc52.90	qc53.95	qc55.80	qc61.85	qc62.90	qc65.35	.....	.....
	Non-Skid	19.90	20.55	26.50	25.60	27.25	qc29.90	qc33.85	.....	46.35	39.25	qc39.90	qc41.95	qc42.75	qc44.90	qc45.60	.....	.....	57.25	qc59.45	qc59.95	qc62.35	qc72.85	qc73.80	qc76.55	.....	.....
	Gray Tubes	3.35	3.65	.....	4.00	4.15	4.35	4.65	.....	.....	5.10	5.45	5.65	5.80	5.95	6.15	6.95	.....	7.40	7.60	7.85	.....	8.70	9.05	9.50	10.60	10.95
	Red Tubes	3.60	3.90	.....	4.30	4.45	4.65	5.00	.....	.....	5.50	5.85	6.10	6.25	6.40	6.60	7.45	.....	7.95	8.15	8.45	.....	9.35	9.70	10.20	11.40	11.80
	Puncture-proof Inner Tubes	4.40	4.35	4.55	5.35	5.45	5.50	6.50	.....	7.10	6.80	6.95	7.15	7.35	8.30	8.60	.....	.....	8.95	9.20	9.50	10.90	11.15	12.30	11.60	.....	.....

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
TYRIAN	Plain	qs14.30	s16.00	cs17.60	s20.00	qs21.15	c23.05	c26.10	.....	cs29.00	qs30.60	c31.35	c32.90	c33.55	c35.15	c35.70	.....	.....	c44.70	c46.70	c47.35	c49.30	c52.00	c52.85	c55.25	cs73.80	cs76.10
	Heldtite Non-Skid	qs15.60	s17.30	cs18.85	s22.10	qs 23.25	c25.10	c28.15	.....	cs31.80	qs33.30	c34.05	c35.65	c36.30	c37.90	c38.45	.....	.....	c48.10	c50.10	c50.75	c52.75	c55.50	c56.25	c58.65	cs79.90	cs82.25
	Extra Heavy Red	3.55	3.70	3.85	4.25	4.35	4.40	4.80	.....	5.60	5.75	5.90	6.10	6.20	6.40	6.65	.....	.....	8.00	8.20	8.45	8.55	9.70	10.10	10.25	11.30	11.50
UNITED STATES	Plain	13.25	13.80	16.85	17.95	18.85	20.80	27.15	30.25	33.75	27.45	28.00	29.30	30.05	36.20	31.90	43.80	39.15	40.40	42.25	42.90	44.65	48.20	56.25	51.10	76.90	91.45
	Usco Non-Skid	15.26	14.50	17.70	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	46.00	41.10	42.45	44.35	45.05	46.85	50.60	59.05	53.70	80.70	.....
	Chain Non-Skid	16.50	16.40	19.95	21.35	22.45	24.55	31.90	35.60	41.10	33.50	34.10	35.90	36.65	44.15	38.95	52.70	47.15	48.75	50.95	51.70	53.85	57.85	67.65	61.25	91.45	109.70
	Nobby Non-Skid	20.70	22.10	28.30	28.70	30.25	33.00	43.05	47.80	49.20	40.00	40.80	42.85	43.65	49.85	46.60	68.20	55.20	57.10	59.65	60.50	63.05	70.20	71.25	74.30	98.30	100.50
	Royal Cord Non-Skid	.....	.....	.....	.....	.....	39.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
	Gray Tubes	2.85	3.00	3.15	3.75	3.85	4.00	4.30	4.50	4.70	4.85	5.00	5.15	5.25	5.45	5.65	6.15	6.40	6.45	6.60	6.85	7.10	8.00	8.15	8.30	9.25	9.40
	Red Tubes	3.65	3.75	4.00	4.65	4.80	4.90	5.35	5.45	5.85	6.00	6.05	6.15	6.25	6.55	6.65	7.90	8.00	8.10	8.25	8.40	8.50	9.65	9.90	10.10	11.10	11.25
VICTOR	Plain	17.10	18.05	.....	22.25	.....	25.85	.....	.....	.....	34.55	35.15	36.70	37.30	38.90	39.30	.....	.....	46.50	48.00	48.85	50.70	.....	.....	60.60	.....	.....
	Ribbed	.....	18.90	.....	23.45	.....	27.20	.....	.....	.....	36.25	37.90	38.50	39.20	.....	.....	.....	.....	48.90	50.95	51.40	.....	60.65	61.45	63.75	.....	.....
	Non-Skid	19.10	20.25	.....	25.15	28.15	28.85	.....	.....	.....	38.72	39.40	41.10	41.90	43.55	44.00	53.10	53.35	53.90	55.00	57.75	59.75	68.00	68.75	71.40	91.45	92.40
	Victor Gray Tubes	3.10	3.30	.....	3.85	4.15	4.25	.....	.....	.....	5.20	5.30	5.45	5.60	5.85	6.00	6.80	6.95	7.10	7.25	7.45	7.60	8.50	8.65	8.85	9.35	9.55
	Victor Red Tubes	3.40	3.60	.....	4.25	4.80	4.90	.....	.....	.....	5.75	5.95	6.10	6.30	6.45	6.60	7.70	7.75	7.90	8.15	8.30	8.45	9.40	9.60	9.80	10.60	10.75
	Springfield Tubes	4.25	4.50	.....	5.55	5.70	5.80	.....	.....	.....	6.75	6.90	7.10	7.25	.....	7.55	.....	8.85	9.05	9.30	9.50	9.70	10.55	10.80	11.00	12.80	13.45
	Springfield Red Tubes	4.60	4.85	.....	6.00	6.10	6.20	.....	.....	.....	7.30	7.40	7.60	7.75	.....	8.15	.....	9.60	9.80	10.05	10.25	10.45	11.40	11.60	11.90	13.90	14.55
VITALIC	Non-Skid	.....	qs15.50	.....	qs20.10	.....	q23.55	.....	.....	.....	qs30.80	qc31.45	32.85	33.70	.....	.....	.....	.....	.....	47.40	48.30	50.35	qc54.20	.....	57.35	.....	.....
	Red and Gray Tubes	3.75	3.85	4.00	4.60	4.75	4.85	5.10	5.25	5.95	6.05	6.15	6.25	6.40	6.50	6.60	7.80	7.90	8.05	8.15	8.30	8.45	9.90	10.00	10.20	11.85	12.10
	Extra Heavy Gray Tubes	4.25	4.35	4.60	5.15	5.35	5.50	5.85	6.00	6.70	6.80	7.05	7.20	7.35	7.55	7.70	8.80	8.95	9.15	9.30	9.45	9.70	11.35	11.55	11.75	13.50	14.05
VULCAN	Gray Tubes	3.30	3.35	.....	4.15	4.25	4.40	5.20	.....	.....	5.40	5.55	5.70	5.85	6.25	6.30	.....	.....	7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
	Indian Red Tubes	3.65	3.70	.....	4.60	4.65	4.80	5.75	.....	.....	5.95	6.15	6.30	6.45	6.90	6.95	.....	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
WILSON	Wearwell Plain	q12.55	q12.20	.....	q15.85	.....	q18.55	.....	.....	.....	.....	q24.75	.....	q26.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Wearwell Non-Skid	q13.15	q12.80	.....	q16.60	q17.55	q19.45	.....	.....	.....	q25.45	q26.00	27.15	q27.85	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Wearwell Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	.....	.....	.....	4.75	4.85	5.00	5.15	5.80	5.50	.....	.....	6.25	6.45	6.65	6.90	7.80	8.60	8.10	9.25	.....
	Wearwell Red Tubes	3.40	3.35	.....	4.20	4.25	4.30	.....	.....	.....	5.30	5.40	5.55	5.70	6.45	6.10	.....	.....	7.00	7.15	7.35	7.65	8.70	9.50	8.95	10.30	.....
	Wilson Non-Skid	.....	.....	.....	.....	.....	.....	.....	.....	.....	qc49.25	.....	qc53.90	.....	.....	.....	.....	.....	.....	qc65.45	.....	qc67.75	cs78.75	.....	c82.55	qc90.00	.....	.....
	Wilson Gray Tubes	3.40	3.35	.....	4.20	4.25	4.30	.....	.....	.....	5.30	5.40	5.55	5.70	6.45	6.15	.....	.....	7.00	7.15	7.35	7.60	8.50	8.70	8.85	9.40	.....
	Wilson Red Tubes	3.70	3.65	.....	4.80	4.85	4.90	.....	.....	.....	6.00	6.05	6.10	6.20	7.09	6.79	.....	.....	7.70	7.85	8.05	8.35	9.35	9.55	9.75	10.40	.....
WOODWORTH	Plain	23.90	25.30	.....	32.60	33.25	36.30	39.90	.....	.....	46.85	47.90	49.90	51.00	.....	53.95	61.15	.....	65.00	66.20	68.75	70.90	81.50	82.40	85.80	.....	.....
	Non-Skid	25.75	27.90	.....	34.90	36.45	38.80	43.95	.....	.....	49.90	53.40	55.25	56.80	.....	59.80	64.15	.....	68.75	70.10	73 35	74.80	85.75	86.70	90.10	.....	.....
	Tubes	3.90	4.00	.....	4.40	4.55	4.65	4.95	.....	.....	6.35	6.60	6.70	6.80	6.90	6.90	7.10	.....	8.65	8.90	9.20	9.40	10.00	10.35	10.55	.....	.....
ZEE-ZEE	"Z" Tread	.....	18.82	.....	21.67	.....	24.12	.....	.....	.....	32.83	34.37	35.61	36.39	37.71	38.89	47.52	48.42	49.33	50.09	52.04	53.70	56.22	57.95	58.86	72.90	78.36
	Brazilian Tubes	3.81	4.11	4.35	4.71	4.83	4.93	5.05	.....	6.04	6.16	6.28	6.57	6.80	6.89	7.06	8.10	8.29	8.41	8.45	8.59	8.95	10.67	10.76	11.23	12.44	13.04
	Climax	.....	10.50	.....	11.70	12.50	13.25	.....	.....	.....	14.25	15.25	16.45	17.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Sampson Tread	.....	14.10	.....	18.25	19.30	21.40	.....	.....	.....	28.00	28.60	29.85	30.65	.....	.....	38.90	40.10	41.30	43.10	43.90	44.60	49.25	52.15	.....	.....	.....

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

These Tables are for your constant consultation and should be of great value in the conduct of your business—

SAVE THEM

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MOTOR WORLD GUIDE

Trucks

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES Kind	TIRES Sizes in Ins. Front	TIRES Sizes in Ins. Rear	MOTOR Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL SYS. Carburetor Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	TRANSMISSION Speeds	TRANSMISSION Total Gear Reduction in High	TRANSMISSION Rear Axle	TRANSMISSION Springs, Make	TRANSMISSION Universals, Make	TRANSMISSION Final Drive	TRANSMISSION Propulsion Taken By	TRANSMISSION Torque Taken By	BRAKES Hand Brake	BRAKES Foot Brake	Steering Gear
A & B.....3T	3	$4500	144	s.	48x3½d	48x3½d	own...	3	4–5½x4½	42.8	2	l..	..	p.	d.	Bosch..	h.	G-E.....	.....	.....	None..	1200	20	Schblr..	g.	s.	...	none...	own....	elect	amid..	2	28.0	own...	Perf...	Franck.	int-g..	rad-rd.	rad-rd.	ext-r-w.	ex-f-w..	Gemr..
A & B.....5T	5	4750	144	s.	48x3½d	48x5d	own...	3	4–5½x4½	42.8	2	l..	..	p.	d.	Bosch..	h.	G-E.....	.....	.....	None..	1200	18	Schblr..	g.	s.	...	none...	own....	elect	amid..	2	28.0	own...	Perf...	Franck.	int-g..	rad-rd.	rad-rd.	ext-r-w.	ex-f-w..	Gemr..
Acason.....B	1½	2100	150	s.	36x3½	36x5	Wauk.	3	4–3½x5½	22.5	2	..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1500	18	Stmbg..	v.	s.	dp.	B&Bek.	Covert.	selec	unt-m.	3	7.75	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acason.....H2	2	2400	150	s.	36x4	36x4d	Wauk.	3	4–4½x5½	29.0	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	7.75	Timkn.	Dtrt.	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acason.....L	3½	3000	172	s.	36x5	36x5d	Wauk.	3	4–4½x6½	29.0	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	12	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	10½	Timkn.	Dtrt ..	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acason.....M	5	4200	172	s.	36x6	40x6d	Wauk.	3	4–4½x6½	36.1	2	..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1000	10	Stmbg..	v.	s.	dp.	B&Bek.	Cotta..	selec	unt-m.	3	11⅞	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acason. Light Tractor	2	2500	114	s.	36x4	36x4d	Wauk.	3	4–4½x5½	29.0	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	9½	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acason. Heavy Tractor	5	3800	130	s.	36x5	36x5d	Wauk.	3	4–4½x6½	36.1	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt..	motor.	Wauk..	1000	10	Stmbg..	v.	s.	dp.	B&Bek.	Cotta..	selec	unt-m.	3	10½	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acme.....B	1	1900	130	s.	34x3	34x4	Cont..	3	4–3½x5	22.5	4	l..	..	t.	s.	Eismn..	h.	l, G&D...	cnt.	motor.	Pierce..	1700	22	Rayfld.	v.	..	dp.	B&Bek.	Cotta..	selec	unt-m.	3	7.75	Timkn.	Dtrt...	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acme.....A	2	2600	148	s.	36x4	36x6	Cont..	3	4–4½x5½	27.2	4	l..	..	p.	s.	Eismn..	f..	l, G&D...	cnt.	motor.	Pierce..	1350	17	Rayfld.	v.	..	dp.	B&Bek.	Cotta..	selec	unt-m.	3	8.50	Timkn.	Dtrt...	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acme.....C	3½	3500	168	s.	36x5	40x5d	Cont..	3	4–4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	l*.....	cnt.	shaft..	Pierce..	1200	14	Rayfld.	v.	..	dp.	B&Bek.	Cotta..	selec	amid..	3	12.0	Timkn.	Dtrt...	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Acme.....D	4	3900	168	s.	36x5	40x5d	Cont..	3	4–4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Pierce..	1200	12	Rayfld.	...	s.	dp.	B&Bek.	Cotta..	selec	amid..	3	13.6	Timkn.	Dtrt...	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
American.....30	3½	3450	158	s.	36x5	36x5d	Cont..	..	4–4½x5½	32.4	2	..	..	p.	s.	Eismn..	h.	l*.....	cnt.	motor.	Pierce..	1143	14	Stmbg..	g.	..	dp.	B&Bek.	Covert.	selec	amid..	4	8.75	Shldn..	Perf...	Evans..	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Armleder.....HW	2	2750	148	s.	36x4	36x7	Cont..	3	4–4½x5½	27.2	4	l..	..	p.	s.	Eismn..	h.	l*.....	cnt.	shaft..	Pierce..	1200	15	Schblr..	g.	s.	dp.	B&Bek.	Covert.	selec	unt-m.	3	8.5	Timkn.	Mthr...	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Armleder.....KW	3½	3600	156	s.	36x5	36x5d	Cont..	3	4–4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	l*.....	cnt.	shaft..	Pierce..	1000	12	Schblr..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.75	Timkn.	Mthr...	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	ext-sht.	Ross...
Atlas.....18	¾	885	106	p.	31x4	31x4	Lycmg	2	4–3½x5	16.9	4	l..	..	t.	s.	Remy..	h.	Remy....	.....	.....	None..	1600	30	Carter..	g.	s.	d..	B&Bek.	Covert.	selec	unt-m.	3	4.7	Hess...	Roland..	Arvac..	sp-bv.	sprgs..	sprgs..	ext-r-w.	int-r-w.	Lvine..
Atterbury.....7R	1½	2475	140½	s.	36x3½	36x5	Cont..	3	4–4½x5½	27.2	4	l..	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce.	1200	15	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	8.5	Timkn.	Sp-Prch	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Atterbury.....7C	2	2875	153½	s.	36x3½	36x4d	Cont..	3	4–4½x5½	27.2	4	l..	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Pierce.	1200	15	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	8.5	Timkn.	Sp-Prch	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Atterbury.....7D	3½	3775	167½	s.	36x5	40x5d	Cont..	3	4–4½x5½	32.4	4	l..	..	p.	d.	Eismn..	h.	.....	cnt.	motor.	Pierce.	1050	13	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	10.3	Timkn.	Sp-Prch	Spicer..	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr..
Autocar.....21F	2	2050	97	s*	34x4*	34x5*	own...	2	2–4½x4½	18.1	..	l..	..	p.	s.	Bosch*.	f..	.....	.....	.....	.....	.....	...	Stmbg..	..	s.	dp.	own....	.....	prog	amid..	3	7.1	own...	.....	.....	d-red.	sprgs.	sprgs.	int-r-w.	ext-r-w.	.....
Available.....1	1	1775	132	s.	36x3½	36x5	Cont..	3	4–3½x5	22.5	4	l..	..	t.	s.	Bosch..	f..	None....	none	.....	.....	.....	...	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Available.....2	2	2450	150	s.	36x4	36x7	Cont..	3	4–4½x5½	27.2	4	l..	..	p.	s.	Bosch..	f..	None....	none	.....	.....	.....	...	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	Timkn.	Tuthill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Available.....3	3½	3450	150	s.	36x5	40x5d	Cont..	3	4–4½x5½	32.4	2	l..	..	p.	s.	Bosch..	f..	None....	cnt.	motor.	Pierce.	1214	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	10.3	Timkn.	Tuthill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Available.....5	5	4500	168	s.	36x6	40x6d	Cont..	3	4–4½x5½	32.4	2	l..	..	p.	s.	Bosch..	f..	None....	cnt.	motor.	Pierce.	1175	12	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	11.7	Timkn.	Tuthill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Avery.....B	2	2700	128	s.	36x4	36x3½d	.....	..	4–4½x5	36.1	1	l..	..	p.	d.	Eismn..	a.	.....	cnt.	motor.	.....	1200	14½	Rayfld.	..	..	dd.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn.	.....	rad-rd.	.....	.....	.....
Avery.....B	3	3200	128	s.	38x5	38x4d	.....	..	4–4½x5	36.1	1	l..	..	p.	d.	Eismn..	a.	.....	cnt.	motor.	.....	1200	13	Rayfld.	..	..	dp.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn.	.....	rad-rd.	.....	.....	.....
Avery.....A	3	2500	140	s.	38x5	38x4d	.....	..	4–4½x5	36.1	1	l..	..	p.	d.	Eismn..	a.	.....	cnt.	motor.	.....	1200	12	Rayfld.	..	..	dd.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn.	.....	rad-rd.	.....	.....	.....
Barber Tractor.....	6	2500	84	s.	34x3½	34x7	Buda..	..	4–4½x5½	29.0	4	l..	..	p.	s.	Bosch..	h.	.....	.....	.....	.....	.....	13	Stmbg..	g.	s.	d..	Fuller..	Fuller..	selec	.....	...	.....	own..	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ross...
Beck.....A	1	1180	124	s.	34x3	34x4	Cont..	..	4–3½x5	19.6	2	l..	..	p.	s.	Bosch..	f..	1 Vesta...	cnt.	motor.	Pierce..	2000	18	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	6.0	Clark..	Hig....	Blood..	int-g..	sprgs.	sprgs.	ext-r-w.	int-r-w.	Lvine..
Beck.....B	1½	1440	124	s.	34x3	34x5	Cont..	..	4–3½x5½	22.5	4	l..	..	p.	s.	Bosch..	f..	1, Vesta...	cnt.	motor.	Pierce..	2000	18	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	6.0	Clark..	Hig....	Blood..	int-g..	sprgs.	sprgs	ext-r-w.	int-r-w.	Lvine..
Beck.....C	2	1860	144	s.	34x4½	34x6	Cont..	..	4–4½x5½	28.9	2	l..	..	p.	s.	Bosch..	f..	1, Vesta...	cnt.	motor.	Pierce..	1500	12	Stmbg..	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	9.0	Clark..	Hig....	Blood..	int-g..	sprgs.	sprgs.	ext-r-w.	int-r-w.	Lvine..
Beech Creek.....3A	3	3850	132	s.	36x6	36x6	Wauk.	3	4–4½x5½	29.0	2	l..	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Wauk..	1000	12	King....	v.	s.	dp.	B-Bek..	own....	selec	amid..	6	8.0	own....	.....	.....	bevl-4.	rad-rd.	sprgs.	ext-r-w.	ext-sht.	own....
Bessemer.....G	1	1250	124	s.	34x3	34x4	Cont..	3	4–3½x5	19.6	4	l..	..	t.	s.	Dixie...	h.	.....	.....	.....	none...	1350	...	Zenith..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.0	Torbn..	Perf...	Blood..	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ross...
Bessemer.....J	2	*2200	158*	s.	36x4	36x4d	Cont..	3	4–4½x5½	27.2	4	l..	..	p.	s.	Dixie...	h.	.....	cnt.	motor.	Pierce..	1100	15	Rayfld.	g.	s.	c..	Hart...	B-Lipe.	selec	amid..	3	8.0	Torbn..	Perf...	Spicer..	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ross...
Bessemer.....D	2	2550	160	s.	36x4	36x4d	Cont..	3	4–4½x5½	27.2	4	l..	..	p.	s.	Dixie...	h.	.....	cnt.	motor.	Pierce..	1100	15	Rayfld.	g.	s.	c..	Hart...	B-Lipe.	selec	amid..	3	7.75	Timkn.	Perf...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Bessemer.....E	3½	3450	150	s.	36x5	36x5d	Cont..	3	4–4½x5½	32.4	2	l..	..	p.	s.	Dixie...	h.	.....	cnt.	motor.	Pierce.	1160	12	Rayfld.	g.	s.	c..	Hart...	B-Lipe.	selec	amid..	3	10.3	Timkn.	Perf...	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Bethlehem.....	1½	1245	126	s.	34x3	34x4	G.B.S.	3	4–3½x4½	22.5	4	l..	..	t.	s.	Brlng..	h.	.....	cnt.	d-shft.	Pierce..	1300	18	Schblr..	g.	s.	d..	Dtroit..	Dtroit..	selec	unt-m.	3	7.4	Russl..	Shel...	Univ...	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Bethlehem.....	2½	1775	144	s.	34x4	34x6	NoAm	3	4–4 x4½	25.6	2	l..	..	t.	s.	Brlng..	h.	.....	cnt.	d-shft.	Pierce..	1100	15	Schblr..	g.	s.	d..	Dtroit..	Dtroit..	selec	unt-m.	3	8.3	Russl..	Shel...	Univ...	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Bethlehem....Tractor	5	2565	120	s.	34x4	34x6	NoAm	3	4–4 x4½	25.6	2	l..	..	t.	s.	Brlng..	h.	.....	cnt.	d-shft.	Pierce..	1100	15	Schblr..	g.	s.	d..	Dtroit..	Dtroit..	selec	unt-m.	3	9.4	Russl..	Shel...	Univ...	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Blair.....C	2	2850	121*	s.	34x4	34x3½d	Wauk.	3	4–4½x5½	29.0	2	l..	..	p.	d.	Bosch..	f..	Eismn....	cnt.	motor.	Wauk..	1060	14	Zenith..	g.	s.	c..	Wabash	own....	id-c.	amid..	3	7.6	Kestone	Sheldon	Ther...	worm.	sub-f.	sub-f.	int-r-w.	ext-sht.	Lvine..
Blair.....D	3	3250	121*	s.	36x5d	36x5d	Wauk.	3	4–4½x5½	29.0	2	l..	..	p.	d.	Bosch..	f..	Eismn....	cnt.	motor.	Wauk..	970	12	Zenith..	g.	s.	c..	Wabash	own....	id-c.	amid..	3	8.6	Kestone	Sheldon	Ther...	worm.	sub-f..	sub-f..	int-r-w.	ext-sht.	Lvine..
Blair.....F	5	4250	144*	s.	36x6	36x6d	Wauk.	3	4–4½x6½	32.4	2	l..	..	p.	d.	Bosch..	a.	Eismn....	cnt.	motor.	Wauk..	870	10	Zenith..	g.	s.	c..	Wabash	own....	id-c.	amid..	3	9.3	Kestone	Sheldon	Ther...	worm.	sub-f.	sub-f	int-r-w.	ext-sht.	Lvine..
Bourne Magnetic..YM	2	3500	143	s.	36x4	36x8	Hercl.	5	4–4 x5½	25.6	1	l..	..	p.	s.	Eismn..	f..	s, l Entz..	cnt.	motor.	Simplx	1280	15	Zenith..	g.	s.	....	Entz...	Entz....	.....	unt-m.	..	8.50	Timkn.	Mthr..	Blood..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Bourne Magnetic..XM	3½	4200	160	s.	36x5	36x10	Hercl.	5	4–4½x5½	29.0	1	l..	..	p.	s.	Eismn..	f..	s, l Entz..	cnt.	motor.	Simplx	1100	12	Zenith..	g.	s.	....	Entz...	Entz....	.....	unt-m.	..	10.3	Timkn.	Mthr..	Blood..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Brinton.....H	1	1250	125	p.	33x4½	33x4½	Wis...	2	4–3½x5	16.9	4	l..	..	p.	s.	.....	f..	l.....	.....	.....	None..	.....	...	.....	h.	s.	dd.	.....	.....	selec	unt-m.	3	6.2	.....	.....	.....	worm.	.....	sprgs.	int-f-w.	int-r-w.	.....
Brinton.....F	2½	2500	140	s.	36x4*	36x6*	Cont..	3	4–4½x5½	27.2	4	l..	..	p.	s.	Bosch..	f..	l.....	cnt.	motor.	Pierce.	.....	...	.....	g.	s.	dd.	.....	.....	selec	unt-m.	3	7.75	.....	.....	.....	worm.	sprgs.	sprgs.	ext-r-w.	int-r-w.	.....
Briscoe.....4-24	½	675	104	p.	31x4	31x4	own...	2	4–3⅞x5½	16.3	4	l..	..	t.	s.	Conn...	h.	s, 1A-Lite.	.....	.....	.....	.....	...	DBuick	g.	d.	c..	own....	own....	selec	unt-x..	3	4.2	own....	.....	own....	bevel..	t-arm	t-arm	int-r-w	ext-r-w.	own....
Briscoe.....T-24	1	1000	132	ps	31x4	34x3½	own...	2	4–3⅞x5½	16.3	4	l..	..	t.	s.	Conn...	h.	s, 1A-Lite.	.....	.....	.....	.....	...	DBuick	g.	d.	c..	own....	own....	selec	unt-j-s	3	9.0	own....	.....	own....	chain..	rad-rd.	tor-a..	int-r-w	ext-j-s..	own....
Brockway.....J-3	1½	2450	140	s.	36x3½	36x5	Cont..	3	4–3½x5	22.5	4	l..	..	p.	s.	Eismn..	f..	.....	suc.	motor.	Mnrch.	1200	15	Schblr..	g.	s.	c..	Hart...	B-Lipe.	selec	amid..	3	8.6	Sheldon	Merrill.	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Brockway.....K-3	2	2850	148	s.	36x4	36x7	Cont..	3	4–4½x5½	27.2	4	l..	..	p.	s.	Eismn..	f..	.....	suc.	motor.	Mnrch.	1200	15	Schblr..	g.	s.	c..	Hart...	B-Lipe.	selec	amid..	3	8.5	Timkn.	Merrill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr..
Brockway.....R	3½	3750	164	s.	36x5	36x5d	Cont..	3	4–4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	l.....	suc.	motor.	Mnrch.	1100	12	Schblr..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	3	10.5	Timkn.	Merrill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr..
Buick.....	¼	790	106	...	31x4	31x4	own...	..	4–3½x4½	18.2	4	l..	..	p.	s.	Delco..	h.	s, l Delco.	.....	.....	.....	.....	...	Marvel.	v.	..	dd.	own....	own....	selec	unt-m.	..	4.08	Timkn.	.....	.....	bevel.	.....	.....	int-r-w.	ext-r-w.	.....
Chase.....A	1	1725	138	s.	36x3½	36x5	Wauk.	3	4–3½x5½	19.6	4	..	..	p.	s.	Bosch..	f..	.....	cnt.	motor.	Mnrch.	1200	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.2	Sheldon	Perf...	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Chase.....C	1½	2025	149	s.	36x3½	36x6	Wauk.	3	4–3½x5½	19.6	4	..	..	p.	s.	Bosch..	f..	.....	suc.	motor.	Mnrch.	1000	16	Stmbg..	g.	..	dp.	B&Bek.	Cotta..	selec	unt-m.	3	8.6	Sheldon	Perf...	.....	worm.	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Chase.....B	2½	2475	160	s.	36x4	36x4d	Buda..	3	4–4½x5½	27.2	4	..	..	p.	s.	Bosch..	.....	.....	suc.	motor.	Mnrch.	1000	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.66	Sheldon	Perf...	.....	worm.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine..
Chase.....X	3	2800	160	s.	36x4	36x5d	Buda..	3	4–4½x5½	27.2	4	..	..	p.	s.	Bosch..	f..	.....	suc.	motor.	Mnrch.	1000	12	Stmbg..	g.	..	dd.	B-Lipe.	B-Lipe.	selec	unt-m	3	9.25	Slaby..	Perf...	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Chase.....U	5½	3400	176	s	36x5	36x5d	Cont*.	3	4–4x5½	32.4	2	l..	..	p.	s.	Bosch..	h.	s, l Dynto..	suc..	motor.	Mnrch	1000	12	Stmbg..	g.	s.	d..	B-Lipe.	B-Lipe.	selec	unt-m	4	8.75	Sheldon	Perf...	.....	worm.	sprgs..	t-arm	ext-r-w.	ext-r-w.	Lvine..
Chevrolet.....	1	1125	128	ps	31x4	32x4	...	..	4–3½x5½	21.7	..	..	..	s	..	Remy..	..	s, 1A-Lite.	sue..	.....	Mnrch	....	25	Zenith..	..	s.	c.	.....	.....	selec	unt-m.	3	7.0	.....	.....	.....	worm.	sprgs..	sprgs..	.....	.....	.....

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES: Kind	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	MOTOR: Make Engine	MOTOR: No. of Crankshaft Bearings	MOTOR: Cylinders Bore and Stroke	MOTOR: S. A. E. Hp.	MOTOR: Cylinders Cast	MOTOR: Valves Placed	MOTOR: Spark Plug	MOTOR: Cooling—Water Circulation	MOTOR: IGNITION Type	MOTOR: IGNITION Make	MOTOR: IGNITION Spark Advance	MOTOR: Electric System—Type and Make	MOTOR: GOVERNOR Type	MOTOR: GOVERNOR Drive	MOTOR: GOVERNOR Make	MOTOR: SPEED Motor in r. p. m.	MOTOR: SPEED Truck in m.p.h.	MOTOR: FUEL SYS. Carbureter Make	MOTOR: FUEL SYS. Fuel Feed	MOTOR: FUEL SYS. Tank Location	TRANSMISSION: CLUTCH Type	TRANSMISSION: CLUTCH Make	TRANSMISSION: GEARSET Make	TRANSMISSION: GEARSET Type	TRANSMISSION: GEARSET Location	TRANSMISSION: GEARSET Speeds	TRANSMISSION: Total Gear Reduction in High	TRANSMISSION: Rear Axle	TRANSMISSION: Springs, Make	TRANSMISSION: Universals, Make	TRANSMISSION: Final Drive	TRANSMISSION: Propulsion Taken By	TRANSMISSION: Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
Garford	3½	3900	128*	s.	36x5	40x5d	Wis...	4	4-4½x6	29.0	4	l..	p.	d.	Bosch..	h.	s, l West..	cnt.	motor.	own....	1050	12	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	10.3	.....	Perf...	Spicer..	worm	rad-rd.	sprgs..	ext-sht.	int-r-w.	Ross...
Garford	5	4700	128*	s.	36x6	40x6d	Wis...	3	4-4½x5½	36.1	2	t.	p.	d.	Bosch..	h.	West.....	cnt.	motor.	own....	1250	9	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j..	4	13.3	.....	Perf...	Spicer..	d-chn.	rad-rd.	.....	int-r-w.	ext-sht.	Ross...
Garford	6	4900	128*	s.	36x6	40x7d	Wis...	3	4-5 1/16x5½	41.6	2	t.	p.	d.	Bosch..	h.	West.....	cnt.	motor.	own....	1100	8	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j..	4	13.3	.....	Perf...	Spicer..	d-chn.	rad-rd.	.....	int-r-w.	int-sht.	Ross...
Garford Tractor	4½	3100	116	s.	36x4	36x4d	Buda..	3	4-4½x5½	29.0	4	l..	p.	s.	Bosch..	h.	West.....	suc.	.....	Mnrch.	1200	...	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	3	9.25	Timkn.	Perf...	Spicer..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Garford Tractor	7	4000	105	s.	36x5	40x5d	Wis...	3	4-4½x5½	36.1	2	t.	p.	d.	Bosch..	h.	West.....	cnt.	.....	own....	1050	...	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	12.0	Timkn.	Perf...	Spicer..	worm	rad-rd.	sprgs..	ext-sht.	int-r-w.	Ross...
Garford Tractor	10	4800	102	s.	36x6	40x6d	Wis...	3	4-5 1/16x5½	41.6	2	t.	p.	d.	Bosch..	h.	West.....	cnt.	.....	own....	1350	...	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j..	4	13.3	own....	Perf...	Spicer..	d-chn.	rad-rd.	sprgs..	int-r-w.	ext-sht.	Ross...
Gary	1	.....	130	s.	36x3½	36x4	Buda*	3	4-3½x5½	22.5	4	l..	p.	s.	Eismn..	f..	Vesta*...	suc.	motor.	Mnrch.	1275	15	Stmbg*.	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.8	Sheldon	Tuthill.	Blood..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Gary	1½	.....	144	s.	36x3½	36x5	Buda..	3	4-4½x5½	28.9	4	l..	p.	s.	Eismn..	f..	Vesta....	cnt.	motor.	Simplex	1275	15	Stmbg*	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.75	Sheldon	Tuthill.	Blood..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Gary	2	.....	156	s.	36x4	36x6	Buda..	3	4-4½x5½	28.9	4	l..	p.	s.	Eismn..	f..	Vesta....	cnt.	motor.	Simplex	1275	15	Stmbg*	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.75	Sheldon	Tuthill.	Hart...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Gary	2½	.....	162	s.	36x4	36x7	Buda..	3	4-4½x5½	28.9	4	l..	p.	s.	Eismn..	a.	Vesta....	cnt.	motor.	Simplex	1275	15	Stmbg*	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.75	Sheldon	Tuthill.	Hart...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Gary	3½	.....	162	s.	36x5	36x5d	Buda..	3	4-4½x6	32.4	4	l..	p.	s.	Eismn..	a.	Vesta....	cnt.	duplex	Duplex.	1200	12	Stmbg..	g.	s.	dd.	Warner	Warner	selec	amid.	4	8.75	Sheldon	Tuthill.	Blood..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
G. A. Schacht	2	2950	141	s.	36x3½	36x6	Buda..	3	4-4½x5½	29.0	4	l..	p.	s.	Bosch..	h.	.....	cnt.	motor.	own....	900	16	Schblr..	g.	s.	c..	Hart...	own....	selec	amid..	3	7.75	own....	Natl...	Hart...	worm	rad-rd.	t-arm	int-r-w.	ext-r-w.	Barns..
G. A. Schacht	2½	3300	156*	s.	36x4	36x4d	Buda..	3	4-4½x5½	29.0	4	l..	p.	s.	Bosch..	h.	.....	cnt.	motor.	own....	900	12	Schblr..	g.	s.	c..	Hart...	own....	selec	amid..	3	8.5	own....	Natl...	Hart...	worm	rad-rd.	t-arm	int-r-w.	ext-r-w.	Barns..
G. A. Schacht	3½	3700	168*	s.	36x5	36x5d	Buda..	3	4-4½x5½	29.0	4	l..	p.	s.	Bosch..	h.	.....	cnt.	motor.	own....	900	10	Schblr..	g.	s.	c..	Hart...	own....	selec	amid..	3	10.3	own....	Natl...	Hart...	worm	rad-rd.	t-arm	int-r-w.	ext-r-w.	Barns..
G. A. Schacht	5	4700	168	..	36x5	40x6d	Buda..	..	.....	....	..	..	..	..	Bosch..	h.	.....	cnt.	motor.	own....	....	...	Schblr..	...	...	..	Hart...	own....	selec	amid..	..	14.0	own....	Natl...	Hart...	worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Barns..
Gem	½	675	....	p.	31x4	31x4	GB&S	3	4-3½x4½	22.5	4	l..	..	t.	s.	Conn...	h.	s, lDynto.	....	.....	.....	....	...	Carter..	...	s.	dd.	GB&S..	G-Lees.	selec	unt-m.	3	4-1	W-W...	.....	.....	bevel..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Fostr...
Geneva	1	.....	96	s.	34x2	36x2½	Beavr.	..	2-5½x4½	22.1	1	l..	..	..	s.	Simms.	f..	None....	....	.....	None..	1200	18	Schblr..	g.	s.	dp.	Warner.	.....	plan	unt-j..	2	4.0	Sheldon	Sheldon	Spicer..	d-cbn.	rad-rd.	rad-rd.	int-r-w.	int-r-w.	.....
Globe	A	1	1425	132	s.	34x3½	34x4	Cont..	3	4-3½x5	19.6	4	l..	..	p.	s.	Eismn..	f..	None....	cnt.	motor.	Pierce..	1385	20	Master.	v.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	7.0	Clark..	Sheldon	Univ...	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Globe	B	1½	1750	144	s.	36x3½	36x5	Cont..	3	4-3½x5½	22.5	4	l..	..	p.	s.	Eismn..	f..	None....	cnt.	motor.	Pierce..	1300	18	Master.	v.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	7.5	Russl..	Sheldon	Univ...	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Globe	C	2	2050	154	s.	36x4	36x6	Cont..	3	4-4½x5½	27.2	4	l..	..	s.	Eismn..	f..	None....	cnt.	motor.	Pierce..	1250	16	Master.	v.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	8.0	Clark..	Sheldon	Univ...	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
G.M.C.	16	¾	1395	132	p.	35x5	35x5	Cont..	3	4-3½x5	22.5	4	l..	..	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1150	20	Marvel.	g.	s.	dd.	own....	own....	selec	unt-m.	3	6.0	W Mott	W Mott	Univ...	bevel..	rad-rd.	sprgs.	int-r-w.	ext-r-w.	Jacox..
G.M.C.	21	1	1950	136	s.	34x3½	34x5	Cont..	3	4-3½x5	22.5	4	l..	..	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1380	18	Marvel.	g.	s.	dd.	own....	own....	selec	unt-m.	3	7.7	Timkn.	Dtrt...	Univ...	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine..
G.M.C.	31	1½	2350	144*	s.	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l..	..	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1300	15	Marvel.	g.	s.	dd.	own....	own....	selec	unt-m.	4	9.2	TDB...	Dtrt...	Univ...	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine..
G.M.C.	41	2	2690	158*	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1200	14	Marvel.	g.	s.	dd.	own....	own....	selec	unt-m.	4	9.2	TDB...	Dtrt...	Univ...	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine..
G.M.C.	71	3½	3750	163*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1210	12	Marvel.	g.	s.	dd.	own....	own....	selec	amid..	4	12.0	TDB...	Dtrt...	Univ...	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine..
G.M.C.	101	5	4350	163*	s.	36x6	40x6d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1210	10	Marvel.	g.	s.	dd.	own....	own....	selec	amid..	4	13.6	TDB...	Dtrt...	Univ...	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine..
Gramm-Bernstein	1	1900	124*	s.	34x3½	34x4	Wauk.	3	4-3½x5½	22.5	4	l..	..	p.	s.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1300	20	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid..	3	6.5	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w	Ross...
Gramm-Bernstein	1½	2300	130*	s.	34x3½	36x5	Wauk.	3	4-3½x5½	22.5	4	l..	..	p.	s.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1200	17	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid..	3	7.75	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w.	ext-r-w	Ross...
Gramm-Bernstein	2	2600	146	s.	34x4	34x3½d	Wauk.	3	4-3½x5½	22.5	4	l..	..	p.	d.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1200	16	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid..	3	8.6	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w.	ext-r-w.	Ross...
Gramm-Bernstein	2½	3150	156	s.	36x4	36x4d	Wauk.	3	4-4½x5½	29.0	4	l..	..	p.	d.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1150	16	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid..	3	7.7	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Gramm-Bernstein	3½	3800	158*	s.	36x5	40x5d	Wauk.	3	4-4½x5½	32.4	2	l..	..	p.	d.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1100	16	Zenith..	g.	s.	dd.	own....	own....	id-c.	amid..	4	8.7	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Gramm-Bernstein	5	4700	168*	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	l..	..	p.	d.	Eismn..	h.	s, l* West.	cnt.	motor.	Wauk..	1050	11	Zenith..	g.	s.	c..	own....	own....	id-c.	amid..	4	9.5	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Grant	15	2	1790	124	s.	34x3½	34x4	Cont..	3	4-3½x5	22.5	4	l..	..	t.	s.	Dixie...	..	s z Remy.	cnt.	d-shft.	Pierce..	1400	14	Stewart	g.	s.	dp.	B&Bek.	G-Lees.	selec	unt-m.	3	9.0	Torbn..	Cooper.	Arvac..	int-g..	sprgs..	sprgs.	int-r-w.	ext-r-w.	Lvine..
Grant	16	...	1885	(140	..	...	.....	...	.....	.....	...	...	...	...	...	...	...	.....	.....	.....	.....	.....	...	.....	...	...	.....	.....	.....	.....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grant	10	1½	1490	(124	ps	34x4½*	34x4	Cont..	3	4-3½x5	22.5	4	l..	..	t.	s.	Dixie...	..	s, l Remy.	cnt.	d-shft.	Pierce..	1400	20	Stewart	g.	s.	dp.	B&Bek.	G-Lees.	selec	unt-m.	3	7.0	Torbn..	Cooper.	Arvac..	int-g..	sprgs..	sprgs.	ext-r-w.	ent-r-w.	Lvine..
Grant	11	...	1585	(140	...	...	.....	...	.....	.....	...	...	...	...	...	...	...	.....	.....	.....	.....	.....	...	.....	...	...	.....	.....	.....	.....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grant	12	¾	960	115	p.	32x4	32x4	HerSp	2	4-3½x5	16.9	4	l..	..	t.	s.	Dixie...	..	s, l Bijur.	....	.....	none....	....	...	Carter..	v.	s.	dp.	B&Bek.	G.Lees.	selec	unt-m.	3	5.3	Torbn..	Cooper.	Arvac..	int-g..	sprgs..	sprgs.	int-r-w.	ext-r-w.	Ditwlr.
Hahn		¾	1100	120*	s.	36x3	36x3½	Cont..	3	4-3½x5	19.6	4	l..	..	p.	d.	Eismn..	h.	.....	cnt.	motor.	Pierce..	1175	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Torbn..	.....	Spicer..	worm	sprgs..	sprgs.	int-r-w.	ext-r-w.	Lvine..
Hahn		1½	1950	144*	s.	36x3½	36x3½d	Cont..	..	4-4½x5½	27.2	..	..	..	..	..	Bosch..	h.	.....	cnt.	motor.	Pierce..	980	15	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	.....	Spicer..	worm	rad-rd.	t-arm	.....	.....	Ross...
Hahn		3½	2900	148*	s.	36x5	36x5d	Cont..	..	4-4½x5½	32.4	..	..	..	..	..	.....	...	.....	.....	.....	.....	.....	...	.....	...	...	...	B-Lipe.	B-Lipe.	....	.....	..	....	Timkn.	.....	Spicer..	.....	.....	.....	.....	.....	Ross...
Hall		2	2350	144	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Bosch*	f..	l, Bosch..	suc.	motor.	Mnrch.	1250	18	Zenith..	g.	s.	dd.	B&Bek.	Covert.	selec	unt-m.	3	9.2	Timkn.	Dtrt...	K-B...	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr...
Hall		3½	3250	144	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch*	f..	l, Bosch..	suc*	motor	Mnrch*	1200	15	Zenith..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	unt-m.	3	10.5	Timkn.	Dtrt...	K-B...	worm*	sprgs*.	sprgs*.	int-r-w.	int-r-w.	Gemr...
Hall		{5 {7	4200	144	s.	36x5	40x6d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch*	f..	l, Bosch*..	suc*	motor	Mnrch*	1200	12	Zenith..	g.	..	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	12.0	Timkn.	Dtrt...	K-B...	worm d-chn	sprgs.. rad-rd.	sprgs.	int-r-w.	{int-r-w ext-j.s.	Gemr...
Harvey	WFA	2½	2850	150	s.	36x4	36x7	Buda..	3	4-4½x5½	29.0	4	l..	..	p.	s.	Eismn..	a.	s, lWest..	cnt.	motor.	Duplex.	1000	16	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	7.75	Sheldon	Sheldon	Spicer..	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross...
Harvey	WHA	3½	3850	160*	s.	36x5	36x5d	Buda..	3	4-4½x6	32.4	4	l..	..	p.	s.	Eismn..	a.	s, lWest..	cnt.	motor.	Duplex.	1000	13	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	8.75	Sheldon	Sheldon	Spicer..	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross...
Harvey	WKA	5	4600	160*	s.	36x6	40x6d	Buda..	3	4-4½x6	32.4	4	l..	..	p.	s.	Eismn..	a.	s, lWest..	cnt.	motor.	Duplex.	1000	11	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	8.75	Sheldon	Sheldon	Spicer..	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross...
Harvey Tractor	HT	10	4000	125	s.	36x5	36x5d	Buda..	3	4-4½x6	32.4	4	l..	..	p.	s.	Eismn..	a.	s, lWest..	....	.....	.....	1000	11	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	8.75	Sheldon	Sheldon	Spicer..	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross...
Hawkeye	J	1½	1750	136*	s.	34x3½	34x5	Buda..	..	4-3½x5½	22.5	4	..	..	t.	s.	Eismn..	h.	s, l West*.	....	.....	Duplex.	1500	15	Master.	v.	s.	dp.	B&Bek.	G-Lees.	selec	unt-m.	3	7.00	Clark..	Tuthill.	Univ...	int-g..	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine..
Hendrickson	G	2	.....	....	s.	36x4	36x4	Wauk.	..	4-4½x5½	29.0	2	...	..	p.	s.	Dixie...	h.	.....	suc.	motor.	Wauk..	1000	15	Stmbg..	g.	..	dd.	Fuller..	Fuller..	....	unt-m.	..	7.75	Timkn.	Tuthill.	.....	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Hendrickson	H	3½	3000	....	s.	36x5	36x5d	Wauk.	..	4-4½x5½	32.4	2	...	..	p.	s.	Dixie...	h.	l.....	cnt.	motor.	Wauk..	1100	14	Stmbg..	g.	..	dd.	B&Bek.	Cotta..	prog	unt-m.	3	10.3	Timkn.	Tuthill.	.....	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Hercules		2	2600	150	s.	34x4	36x4d	Cont..	3	6-3½x5½	29.4	6	...	..	p.	s.	Dixie...	f..	s, l West..	suc.	motor	Mnrch.	1100	16	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.¾	own....	Sheldon	M-Eva.	worm	rad-rd.	sprgs.	int-sht..	int-r-w.	Ross...
Hercules		3	3000	160	s.	34x4	36x5d	Cont..	3	6-3½x5½	29.4	6	...	..	p.	s.	Dixie...	f..	s, l West..	suc.	motor	Mnrch.	1100	14	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	10.¾	own....	Sheldon	M-Eva.	worm	rad-rd.	sprgs.	int-sht..	int-r-w.	Ross...
Hercules		4	3800	160	s.	36x5	40x5d	Cont..	3	6-3½x5½	33.7	3	...	..	p.	s.	Dixie...	f..	s, l West..	suc.	motor	Mnrch.	1100	13	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	11½	own....	Sheldon	Spicer..	worm	rad-rd.	sprgs.	int-sht..	int-r-w.	Ross...
Hercules		5	4500	168	s.	36x5	40x6d	Cont..	3	6-3½x5½	33.7	3	...	..	p.	s.	Dixie...	f.	s, l West..	suc.	motor	Mnrch.	1100	12	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	12¾	own....	Sheldon	Spicer..	worm	rad-rd.	sprgs.	int-sht..	int-r-w.	Ross...
Highway	A	5	.....	93	s.	34x4	36x4	Cont..	..	4-3½x5	22.5	4	..	..	p.	s.	Eismn..	h.	.....	....	.....	.....	....	10	Schblr..	g.	..	dd.	B&Bek.	Warner	selec	unt-m.	2	13.4	own....	.....	.....	int-g..	tor-a..	tor-a.	int-f-w	ext-r-w	own....
Higrade	A-18	1	1800	115	p.	35x5	35x5	Cont..	3	4-3½x5	19.6	4	l..	..	p.	..	.....	s.	l Le-Nv.	....	.....	Simplex	....	20	Zenith..	g.	s.	p..	Fuller.	Fuller.	id-cl	unt-m.	3	4.56	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine..
Hoover		¾	1350	120	p.	32x4	33x4½	Cont..	3	4-3½x5	19.6	4	l..	..	t.	..	Dixie..	h.	None....	....	.....	None	....	25	Schblr..	v.	c.	d..	Fuller..	Fuller.	selec	unt-m.	3	6.2	Sheldon	Seldn..	Acme.	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Horner		1½	2600	145	s.	36x4	36x4	.....	3	4-4½x5½	27.2	4	..	..	p.	d.	Bosch.	h.	.....	cnt.	motor	Mnrch.	1200	16	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	.....	Perf...	Spicer..	worm	rad-rd.	.....	int-r-w.	int-r-w.	Ross...
Horner		2	2750	145	s.	36x4	36x3½d	Cont..	3	4-4½x5½	27.2	4	..	..	p.	d.	Bosch.	h.	.....	cnt.	motor	Mnrch.	1200	16	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	.....	Perf...	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Horner		3	3550	145	s.	36x5	40x4d	Cont..	3	4-4½x5½	32.4	2	t.	..	p.	d.	Bosch.	h.	.....	cnt.	motor	Mnrch.	1150	12	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt.m.	3	9.4	own....	Perf...	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Horner		5	4750	156	s.	38x6	42x6d	Cont..	3	4-5½x5½	44.1	2	t.	..	p.	d.	Bosch.	h.	.....	cnt.	motor	Mnrch.	1050	10	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	3	13.4	own....	Perf...	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Hurlburt	1	1½	2600	136*	s.	34x4	34x5	Buda..	3	4-3½x5½	22.5	4	l..	..	p.	s.	Eismn..	l.	l, Vesta...	cnt.	motor.	.....	1375	18	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.25	own....	Merl...	.....	worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross...
Hurlburt	2	2	3500	148*	s.	36x4	36x4d	Buda..	3	4-4½x5½	29.0	4	l..	..	p.	d.	Eismn..	l.	l, Vesta...	cnt.	motor.	Pierce..	1300	16	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	own....	Merl...	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross...
Hurlburt	3	3½	4130	156*	s.	36x5	36x5d	Buda..	4	4-4½x6	32.4	4	l..	..	p.	d.	Eismn..	l.	l, Vesta...	cnt.	motor.	Pierce..	1050	13	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	own....	Merl...	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross...
Hurlburt	5	5	5000	156*	s.	36x5	40x6d	Buda..	4	6-3½x5½	33.7	6	l..	..	p.	d.	Eismn..	l.	l, Vesta...	cnt.	motor.	Pierce..	1360	12	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	3	10.3	own....	Merl...	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross...
Hurlburt	7	7	6500	156*	s.	36x6	40x7d	Buda..	3	6-3½x5½	33.7	6	l..	..	p.	d.	Eismn..	l.	l, Vesta...	cnt.	motor.	Pierce..	1360	12	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	13.0	own....	Merl...	.....	worm	rad-rd.	t-arm	int-r-w.	int-sht.	Ross...
Hurlburt	F	1	1386	138*	s*	36x3*	36x4*	Cont..	3	4-3½x5	19.6	4	..	..	p.	s.	Eismn..	f..	s, l Jesco.	suc.	motor	Mnrch.	1350	...	Marvel.	g.	s.	dd.	.....	.....	selec	unt-m.	3	.....	.....	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	.....
Independent		3	1650	144	s.	36x3½	36x5	Cont..	..	4-4½x5½	27.2	4	..	..	p.	s.	Eismn..	f..	.....	suc.	motor	Mnrch.	.....	...	.....	...	...	...	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in inches	TIRES			MOTOR																						TRANSMISSION												BRAKES		
				Kind	Sizes in Ins. Front	Sizes in Ins. Rear	Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL SYS. Carbureter Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	GEARSET Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	Steering Gear
Menominee	H	1½	2190	144*	s.	36x3½	36x5	Cont.	3	4-3¾x5½	22.5	4	l.	p.	s.	Eismn.	h.		cnt.	d-shft.	own.	800	15	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	9.25	Timkn	Tuthill	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr.
Menominee	D	2	2615	144*	s.	36x4	36x6*	Cont.	3	4-4½x5½	27.2	4	l.	p.	s.	Eismn.	h.		cnt.	d-shft.	own.	750	14	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	9.25	Timkn	Tuthill	Blood	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr.
Menominee	G	3½	3580	160*	s.	36x5	36x5d	Cont.	3	4-4½x5½	32.4	2	l.	p.	s.	Eismn.	h.				own.	750	12	Stmbg.	g.	s.	dp.	B&Bek.	Cotta.	selec	amid.	3	10.3	Timkn	Titanic	Blood	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr.
Menominee	J	5	4540	160		36x6	36x6d	Cont.		4-4½x5½	32.4		l.	p.		Eismn.							Stmbg.	g.	s.	dp.	B&Bek.	Cotta.	id-c.	amid.	3	14.4	Timkn	Titanic	Acme	worm	rad-rd.	sprgs.			Gemr.
Modern	30		1800	132	s.	34x3½	34x5	Cont.		4-3½x5	22.5	4		p.	d.	x	f.	•	•	•	•			Zenith			dd.	Fuller.	Fuller	selec	unt-m.	3		Timkn			worm	rad-rd.	sprgs.	ext-r-w.	ext-r-w.	Ross
Moreland	17-N	1	2150	126	s.	34x3½	34x4	Cont.	3	4-3½x5	22.5	4	l.	t.	s.	Dixie	h.	l, West	cnt.	motor.	Pierce.	1200	19	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.0	Timkn.	own	Ther	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Moreland	17-B	1½	2750	126*	s.	36x3½	36x5	Cont.	3	4-4½x5½	27.2	4	l.	p.	s.	Dixie	h.	l, West	cnt.	motor.	Pierce.	1140	17	Master*	g.	s.	dd.	own	own	selec	amid.	4	7.0	Timkn	own	Ther	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Moreland	17-C	2½	3375	144*	s.	36x4	36x7	Cont.	3	4-4½x5½	32.4	2	l.	p.	s.	Dixie	h.	l, West	cnt.	motor.	Pierce.	1090	16½	Master*	g.	s.	dd.	own	own	selec	amid.	4	6.8	Timkn	own	Ther	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Moreland	17-G	4	4150	162*	s.	36x5	40x5d	Wauk.	3	4-4½x6½	36.1	2	l.	p.	d.	Dixie	h.	l, West	cnt.	motor.	Wauk.	950	14	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	7.8	Timkn	own	Ther	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Moreland	17-J	5	5000	180*	ps	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	l.	p.	d.	Dixie	h.	l, West	cnt.	motor.	Wauk.	950	12	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	8.8	Timkn	own	Ther	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Moon	B	1½	1650	140*	s.	36x3½	36x5*	Cont.	3	4-3½x5½	22.5	4	l.	p.	d.	Remy*					none	1800	18	Stmbg.	g.	s.	c.	Hart	Muncie	selec	unt-j.	3		Sheldon			d-chn	rad-rd.		int-r-w.	int-r-w.	Warner
Muskegon	20	2	1995	144	s.	36x4	36x6	Cont.		4-4½x5½	27.2	4		p.	s.	Eismn.	f.		cnt.	motor.	Pierce.	1230	16	Stwrt.	g.		dd.	Fuller.	Fuller	selec	unt-m.	3	8.0	Torbn			int-g.	sprgs.	sprgs.	ext-r-w.	int-r-w.	Lvine
Nash	2017	1	1495	130	s.	34x3	34x4	own	3	4-3½x5½	22.5	4	l.	p.	s.	Delco		s, l Bijur	cnt.	motor.	Simplex	1345	20	Stmbg.	g.	s.	dp.	B&Bek.	Dtrt	selec	unt-m.	3	6.8	Clark			int-g.	sprgs.	sprgs.	ext-sht.	ext-r-w.	
Nash	4017	2	3250	124*	s.	36x5	36x5	Buda	3	4-4½x5½	29.0	4	l.	p.	s.	Dixie	h.	s, l Bijur	cnt.	motor.	Simplex	1190	15	Stmbg.	g.	s.	dp.	B&Bek.	own	selec	amid.	3	8.5	own			int-g-4	sprgs.	sprgs.	ext-sht.	int-4-w.	
Nash	3017	2	1875	144	s.	34x4	34x6	own	3	4-3½x5½	22.5	4	l.	p.	s.	Delco	h.	s, l Bijur	cnt.	motor	Simplex	1290	16	Stmbg.	g.	s.	dp.	B&Bek.	own	selec	unt-m.	3	8.1	Clfor			int-g.	sprgs.	sprgs.	ext-sht.	ext-r-w.	
Nelson & LeMoon	E1	1½	1700	opt.	s.	36x3½	36x5	Cont.	3	4-3½x5½	22.5	4	l.	p.	s.	Bosch	h.	s, l West	suc.	motor	Mnrch	1100	18	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	7.0	Timkn	Tuthill		worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
Nelson & LeMoon	E2	2	2250	opt.	s.	36x4	36x7	Cont.	3	4-4½x5½	27.2	4	l.	p.	d.	Bosch	h.	s, l West	suc.	motor	Mnrch	1100	18	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	7.0	Timkn	Tuthill		worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
Nelson & LeMoon	E3	3	2950	opt.	s.	36x5	38x5d	Cont.	3	4-4½x5½	32.4	2	l.	p.	d.	Bosch	h.	s, l West	suc.	motor	Mnrch	1100	14	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	8.7	Timkn	Tuthill		worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
Nelson & LeMoon	E5	5	3750	opt.	s.	36x6	40x6d	Buda	3	4-4½x6	32.4	4		p.	d.	Bosch	h.	s, l West	suc.	motor	Mnrch	1050	11	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	4	11.3	Timkn	Tuthill		worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
Netco	D	2	2800	144*	s.	36x4	36x6	Cont.	3	4-4½x5½	27.2	4	l.	p.	s.	Eismn.	f.	s, l G&D			none	1800	15	Zenith	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	8.5	Timkn			worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Netco	E	2	3200	144*	s.	36x4	36x6	Cont.	3	6-3½x5½	33.7	6	l.	p.	d.	G&D	h.	s, l G&D			none			Zenith	g.	s.	dd.	B-Lipe	B-Lipe	prog	unt-m.	3	8.5	Timkn			worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
New York	M	1½	2200	144*	s.	36x3½	36x5	Cont.	3	4-4½x5½	27.2	4	l.	p.	s.	Bosch	f.	None	cnt.	motor.	Pierce.	1400	18	Stmbg.	g.	s.	dp.	B&Bek.	Cotta	id-c.	unt-m.	3	7.7	Timkn			worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	
New York	N	2	2600	144	s.	36x4	36x4d	Cont.	3	4-4½x5½	27.2	4	l.	p.	s.	Bosch	f.	None	cnt.	motor.	Pierce.	1100	15	Stmbg.	g.	s.	dp.	B&Bek.	Cotta	id-c.	unt-m.			Timkn			worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	
Niles	B	1	1500	124	p.	35x5	35x5	Cont.	3	4-3½x5	19.6	4	l.	t.	s.	Eismn.	h.		cnt.	motor.	Pierce.	1573	25	Stmbg.	g.	s.	dd.	Covert	Covert	selec	unt-m.	3	6.5	Timkn			worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
Niles	E	2	2400	140*	s.	36x4	36x7	Cont.	3	4-4½x5½	27.2	4	l.	p.	s.	Eismn.	h.		cnt.	motor.	Pierce.	1173	15	Stmbg.	g.	s.	dp.	B&Bek.	Covert	selec	amid.	3	8.5	Timkn			worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr
Noble	NW	2	2300	148	s.	36x4	36x6	Cont.		4-4½x5½	27.2	4	l.	p.	s.	Eismn.	h.		cnt.	motor.	Pierce.	1300	16	Stmbg.	▼	s.	dp.	B&Bek.	Cotta	id-c.	unt-m.	3	8.75	Sheldon	Kal	Blood	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Norwalk		1	1350	130	p.	31x4	31x4s	Lycmg		4-3½x5	19.6		l.	t.	s.	Deleo		s, l Dynt													3											
Old Hickory	M	½	875	112	p.	33x4	33x4	Lycmg	2	4-3½x5	16.9	4	l.	t.	s.	Conn	h.	s, l Dynt			None	960	16	Carter	g.	s.	c.	Lycmg	G-Lees	selec	unt-m.	3	6.0	Salsby	Tuthill	Own	bevel	tor-t	tor-t	int-r-w	ext-r-w	C.A.S
Old Reliable		1½	1950	150*	s.	34x3½	36x6	Wis.	3	4-3½x5	22.5	4	l.	p.	s.	Bosch	h.	l						Stmbg.	g.	d.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	7.7				worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Old Reliable		2	2450	150	s.	34x4	36x4d	Wis.	4	4-4x6	25.6	4	l.	p.	s.	Bosch	h.	l	cnt.	duplx.	Duplex.			Stmbg.	g.	d.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	7.7	Sheldon			worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Old Reliable		2½	2750		s.	34x4	36x4d	Wis.	3	4-4½x5	29.0	2	t.	p.	s.	Bosch	h.	l						Stmbg.	g.	s.	dd.		DSOC	selec	unt-j.	3		SA&P			d-chn	rad-rd.		int-r-w.	ext-j-s.	Ross
Old Reliable		3	3250	150	s.	34x5	36x5d	Wis.	4	4-4½x6	29.0	4	l.	p.	s.	Bosch	h.	l	cnt.	duplx.	Duplex.			Stmbg.	g.		dd.		B-Lipe	selec	unt-m.	3	8.7	Sheldon			worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Old Reliable		4	3750		s.	36x5	40x5d	Wis.	3	4-4½x5½	36.1	2	t.	p.	s.	Bosch	h.	l	cnt.	duplx.	Duplex.			Stmbg.	g.		dd.		B-Lipe	selec	amid.	4	8.7	Sheldon			worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Old Reliable		4	3750		s.	36x6	36x6d	Wis.	3	4-4½x5½	36.1	2	t.	p.	s.	Bosch	h.	l						Stmbg.	g.	s.	d.			selec	amid.	3		Sheldon			d-chn	rad-rd.		ext	int	Ross
Old Reliable		5	4500	150*	s.	36x6	36x6d	Wis.	3	4-4½x5½	36.1	2	t.	p.	s.	Bosch	h.	l	cnt.	duplx.	Duplex.			Stmbg.	g.	s.	d.	DriSe		selec	amid.	3					d-chn	rad-rd.		ext-r-w.	int-j-s.	Ross
Old Reliable		7	5000	150	s.	36x6	40x7d	Wis.	3	4-5 7/10x5½	41.6	2	t.	p.	s.	Bosch	h.	l	cnt.	duplx.	Duplex.			Stmbg.	g.		d.			selec	unt-j.	4					d-chn	rad-rd		int-r-w.	ext-j-s.	Ross
Oneida	A	1	2290	130	s.	36x3½	36x5	Cont.		4-3¾x5½	22.5	4		p.	s.	Bosch	h.	l, Bosch	cnt.	motor	Duplex.	980	16	Stmbg.	g.		d.	H-Shaw	Cotta	id-c.	amid.	3	8.7	Timkn	Mather	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Oneida	B	1½	2650	130	s.	36x3½	36x5	Cont.		4-3¾x5½	22.5	4		p.	s.	Bosch	h.	l, Bosch	cnt.	motor	Duplex.	1040	15	Stmbg.	g.		d.	H-Shaw	Cotta	id-c.	amid.	3	9.2	Timkn	Mather	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Oneida	C	2	3000	144	s.	36x4	36x4d*	Cont.		4-4½x5½	27.2	4		p.	s.	Bosch	h.	l, Bosch	cnt.	motor	Duplex.	970	14	Stmbg.	g.		d.	H-Shaw	Cotta	id-c.	amid.	3	9.2	Timkn	Mather	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Oneida	D	3½	3600	160	s.	36x5	36x5d	Cont.		4-4½x5½	32.4	2		p.	s.	Bosch	h.	l, Bosch	cnt.	motor	Duplex.	1150	12	Stmbg.	g.		d.	H Shaw	Cotta	id-c.	amid.	3	10.3	Timkn	Mather	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Overland	Panel	½	745	104	p.	31x4	31x4	own	2	4-3½x5	18.2	4	l.	t.		Conn	h.	s, l A-Lite			none			Tltsn	v.	d.	c.	own	own	selec	unt-x.	3	4.3	own			bevel	tor-t	tor-t	int-r-w.	ext-r-w.	own
Overland	Express	½	880	106	p.	33x4½	33x4½	own	5	4-4¼x4½	27.2	4	l.	t.		Conn	h.	s, l A-Lite			none			Tltsn	g.	s.	c.	own	own	selec	unt-x.	3	4.4	own			bevel	tor-t	tor-t	int-r-w.	ext-r-w.	own
Packard	1-E	1	2450	126*	s.	34x3½	34x6	own	4	4-4x5½	25.6	4	l.	p.	d.	Dixie	h.	s, l Bijur	cnt.	motor	own	1000	16	own	p.	s.	dd.	own	own	selec	amid.	4	6.25	own			worm	rad-rd.	t-arm	int-r-w.	ext-sht.	own
Packard	1½-E	1½	2800	126*	s.	34x3½	34x3½d	own	4	4-4x5½	25.6	4	l.	p.	d.	Dixie	h.	s, l Bijur	cnt.	motor	own	1000	16	own	p.	s.	dd.	own	own	selec	amid.	4	6.25	own			worm	rad-rd.	t-arm	int-r-w.	ext-sht.	own
Packard	2-E	2	3200	144*	s.	34x4	34x4d	own	4	4-4x5½	25.6	4	l.	p.	d.	Dixie	h.	s, l Bijur	cnt.	motor	own	1000	14	own	p.	s.	dd.	own	own	selec	amid.	4	7.25	own			worm	rad-rd.	t-arm	int-r-w.	ext-sht.	own
Packard	3-E	3	3900	156*	s.	36x5	36x5d	own	4	4-4½x5½	32.4	4	l.	p.	d.	Dixie	h.	s, l Bijur	cnt.	motor	own	1000	12	own	p.	s.	dd.	own	own	selec	amid.	4	9.0	own			worm	rad-rd.	t-arm	int-r-w.	ext-sht.	own
Packard	4-E	4	4375	156*	s.	36x5	40x5d	own	4	4-4½x5½	32.4	4	l.	p.	d.	Dixie	h.	s, l Bijur	cnt.	motor	own	1000	12	own	p.	s.	dd.	own	own	selec	amid.	4	10.0	own			worm	rad-rd.	t-arm	int-r-w.	ext-sht.	own
Packard	5-E	5	4900	156	s.	36x6	40x6	own	4	4-5 x5½	40.0	4	l.	p.	d.	Dixie		s, l Bijur	cnt.	motor	own	1000	11	own	p.	s.	dd.	own	own	selec	amid.	4	10.7	own			worm	rad-rd.	t-arm	int-r-w.	ext-sht.	own
Packard	6-E	6	5150	156	s.	36x6	40x7	own	4	4-5 x5½	40.0	4	l.	p.	d.	Dixie	h.	s, l Bijur	cnt.	motor	own	1000	11	own	p.	s.	dd.	own	own	selec	amid.	4	10.7	own			worm	rad-rd.	t-arm	int-r-w.	ext-sht.	own
Packet		1 7/8	300	100	p.	28x3	28x3	Prugh.	2	4-2¾x4	12.1	4	l.	t.	s.	A.Kent.	a.				none	1500	25	Carter	g.	d.		own	own	fric.	unt-j.	3	4.2	own			d-chn	rad-rd		int-r-w.	int-r-w.	own
Palmer		1	1685	132½	s.	34x3½	34x4	Cont.	3	4-3¾x5	22.5	4	l.	t.	s.	Bosch	f.				none		18	Stmbg.	g.	s.	dd.	Fuller.	Fuller	selec	unt-m.	3		Torbn			int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross
Palmer		2	2495	144	s.	36x3½	36x3½d	Cont.	3	4-4½x5½	27.2	4	l.	p.	s.	Bosch	f.		cnt.	motor.	Pierce.	1000	15	Stmbg.	g.	s.	dd.	Fuller.	Fuller	selec	unt-m.	3	7.7	Timkn			worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Pan-American		2½	2250	160	s.	36x4	36x6	Buda		4-4½x5½	28.9	4		p.	s.	Dixie	h.		suc.			1100	15	Stmbg.	v.		dd.			selec	unt-m.	3					int-g.	sprgs.		int	ext-r-w.	Ross
Panhard	A	1	985	125	ps	32x3½	32x3½	Gray.	3	4-3½x5	19 6	4	l.	t.	s.	A-Lite	h.	l, A-Lite				1600	28	Schblr.	v	s.	dd.	Fuller.	Fuller	selec	unt-m.	3	6.5	Torbn.	Kal	Arvac	int-g.	tor-t	sprgs.	int-r-w.	ext-r-w.	Lvine
Panhard	B	1½	1185	130	s.	32x3½	32x4	Gray.	3	4-3½x5	19.6	4	l.	t.	s.	A-Lite	h.	l, A-Lite				1600	22	Schblr.	v	s.	dd.	Fuller.	Fuller	selec	unt-m.	3	8.0	Torbn	Kal	Arvac	int-g.	tor-t	sprgs.	int-r-w.	ext-r-w.	Lvine
Peerless	TC3	3	4000	151*	s.	36x4	40x4d	own	3	4-4½x6½	32.4	2	t.	p.	d.	Remy	h.		cnt.	motor.	own	925	14½	Stmbg.	g.	s.	c.	own	own	selec	unt-j.	4	7.4	own			d-chn	rad-rd.		int-r-w.	ext-j-s.	own
Peerless	TC4	4	4150	151*	s.	36x5	40x5d	own	3	4-4½x6½	32.4	2	t.	p.	d.	Remy	h.		cnt.	motor	own	925	12½	Stmbg.	g.	s.	c.	own	own	selec	unt-j.	4	8.7	own			d-chn	rad-rd.		int-r-w.	ext-j-s.	own
Peerless	TC5	5	4700	151*	s.	38x6	42x6d	own	3	4-4½x6½	32.4	2	t.	p.	d.	Remy	h.		cnt.	motor	own	925	11	Stmbg.	g.	s.	c.	own	own	selec	unt-j.	4	10.5	own			d-chn	rad-rd.		int-r-w.	ext-j-s.	own
Peerless	TC6	6	5200	151*	s.	38x7	42x7d	own	3	4-4½x6½	32.4	2	t.	p.	d.	Remy	h.		cnt.	motor	own	925	11	Stmbg.	g.	s.	c.	own	own	selec	unt-j.	4	10.5	own			d-chn	rad-rd.		int-r-w.	ext-j-s.	own
Pierce-Arrow		2	3750	150*	s.	36x4	36x4d	own	3	4-4x5½	25.6	2	t.	p.	s.	Eismn*	h.		cnt.	motor.	own	1050	16	own	g.	s.	c.	own	own	selec	amid.	4	7.0	own			worm	rad-rd.	t-arm	int-r-w.	ext-sht.	own
Pierce-Arrow		5	5500	168*	s.	36x5	40x6d	own	3	4-4½x6	38.0	2	t.	p.	d.	Bosch*	h.		cnt.	motor	own	950	14	own	g.	s.	c.	own	own	selec	amid.	3	7.8	own			worm	rad-rd.	t-arm	int-r-w.	ext-sht.	own
Pullmore		3	3650	163	s.	36x6	36x6	Buda		4-4½x6	32.4	4	l.	p.	s.	Eismn.	h.	West	cnt.	motor.	Pierce.	1050	12		v.	s.		B&Bek.	Warner	selec	unt-m.	3	9.9	own			bevel	rad-rd.	rad-rd.	int-r-w.	ext-d-s.	Ross
Rainier		½	995	115	p.	33x4	33x4	Light	2	4-3½x4½	16.9	4	l.	t.	s.	Dixie	h.	s, l Splitd			none	2000	34	Zenith	v.	s.	dp.	B&Bek.	G-Lees	selec	unt-m.	3	5.8	Timkn	Perf	Hart	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
Rainier		1½	1340	125	p*	32x4	32x4	Light		4-3½x4½	16.9	4	l.	t.		Dixie	h.	s, l Bijur			none			Zenith	v.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	8.2	Hayes	Perf	Hart	worm	sprgs.	sprgs.	ext-r-w.	ext-r-w.	Lvine
Rennoc		2½	3250	144																																						
Rennoc Tractor		6	3250	110	s.	36x5	36x7	Buda		4-4½x5½	27.2	4	l.		p.	d.	Splitdf.	h.	l, West	cnt.	motor.	Pierce.	1200	18	Stmbg.	v.	s.	dd.	Warner	Warner	selec	amid.	4	8.6	sprgs	Rolnd.	Hart	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
Rex	F	½	1100	128	p.	34x4½	34x4½	own	3	4-4¼x4½	27.2	2	tl.	½	p.	s.	Remy	h.	s, l Remy			none			Johnsn	g.	d.	dd.	own	own	selec	amid.	3	4.3	own			sp-bv.	sprgs.	t-arm	none	ss-r-w.	own

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES			MOTOR																						TRANSMISSION											BRAKES		Steering Gear
				Kind	Sizes in Ins. Front	Sizes in Ins. Rear	Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL SYS. Carbureter Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	GEARSET Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Tor.-a. Taken By	Hand Brake	Foot Brake	
Tiffin SW	6	4650	168	s.	36x6	40x6d	Cont.	3	6-3¾x5½	33.7	3	l.	¼	p.	s.	Bosch	h.	s, lBosch	cnt.	motor	Pierce.	1000	10½	Schblr.	g.	s.	dp.	B&Bek.	Covert	selec	amid.	3	13.0	Sheldon	.....	.....	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Titan	5	5000	156	s.	36x6	40x6d	Buda.		4-4½x6	32.4	4			p.	s.	Bosch	h.	l, Bosch	cnt.	motor	Simplex	1000	11	.....	g.	s.	dp.	B&Bek.	Cotta	id-c.	amid.	3	11.0	Clark	Sheldon	.....	int-g.	rad-rd.	sprgs.	int	int	Lvine
Transport Tractor N	5	2750	80	s.	34x3½	34x4d	.....	3	4-3¾x5	22.5	4	l.		t.	s.	Bosch	f.	.....	suc.	motor	Mnrch	....	12	Zenith	g.		dd.	.....	.....	selec	unt-m.	4	...	.....	.....	worm	sprgs.	sprgs	int-r-w.	int-r-w.	.....
Triangle A	1½	.....	144	s.	34x3½	34x6	Wauk.		4-3¾x5½	22.5	4			p.	s.	Eismn.	f.	.....	cnt.	motor	Wauk.	1200	15	Stmbg.	g.		dd.	Fuller	Fuller	selec	unt-m.	3	7.0	Clark	.....	.....	int-g.	sprgs.	sprgs.	ext-r-w.	ext-sht	Gemr
Union B	2½	2075	152	s.	39x4	39x6	Wis.	4	4-4x6	25.6	4	l.		p.	s.	Eismn.	h.	l*	cnt.	d-shft	Simplex	1200	15	Schblr.	g.	d.	dd.	Fuller	Fuller	selec	unt-m.	3	7.7	Russel.	Mthr	.....	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross
United BSW	2	2350	144*	s.	36x4	36x4d	Cont.	3	4-4¼x5½	27.2	4	l.		p.	s.	Eismn.	h.	s, l	cnt.	motor	Pierce.	1125	14	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	8.6	Sheldon	Tuthill	Hart	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
United CSW	3½	3150	144*	s.	36x5	36x5d	Cont.	3	4-4½x5½	32.4	2	l.		p.	s.	Eismn.	h.	s, l*	cnt.	motor	Pierce.	980	12	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	8.7	Sheldon	Sheldon	Hart	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
United DSW	4	3450	144*	s.	36x5	36x6d	Cont.	3	4-4½x5½	32.4	2	t.		p.	s.	Eismn.	h.	s, l*	cnt.	motor	Pierce.	980	12	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	8.7	Sheldon	Tuthill	Hart	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
United ESW	5	4250	144*	s.	36x6	40x6d	Wis.	3	4-4½x5½	36.1	2	t.		p.	s.	Eismn.	h.	s, l*	cnt.	d-shft	Pierce.	897	10	Zenith	g.	s.	dd.	B-Lipe	B-Lipe	selec	amid.	4	11.7	Sheldon	Tuthill	Hart	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
United Tractor	6	2490	110	s.	34x3½	34x7	Buda.		4-4¼x5½	27.2	4	l.		p.	s.	Bosch								Zenith	g.	s.	...	Muncie	Muncie	selec	unt-m.	4	10.0	.....	.....	.....	int-g.	rad-rd.	.....	int-r-w.	int-r-w.	Ro-s
U. S. E	2½	2650	144*	s.	34x4	36x4d	Cont.	3	4-4½x5½	27.2	4	l.		p.	d.	Bosch	h.	l, Bosch	cnt.	motor	Pierce.	1160	15	Stmbg.	g.	s.	c.	Hart	Cotta	id-c.	amid.	3	8.2	own	Tuthill	Hart	d-chn	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine
U. S. H	2½	2950	144*	s.	34x4	36x4d	Cont.	3	4-4½x5½	27.2	4	l.		p.	d.	Bosch	h.	l, Bosch	cnt.	motor	Pierce.	1160	15	Stmbg.	g.	s.	c.	Hart	Cotta	id-c.	amid.	3	8.7	Sheldon	Sheldon	Hart	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
U. S. D	3½	3350	162*	s.	36x5	36x5d	Cont.	3	4-4½x5½	32.4	2	l.		p.	d.	Bosch	h.	l, Bosch	cnt.	motor	Pierce.	1090	13	Stmbg.	g.	s.	c.	Hart	Cotta	id-c.	amid.	3	8.1	own	Tuthill	Hart	d-chn	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine
U. S. J	3½	3650	162*	s.	36x5	40x5d	Cont.	3	4-4½x5½	32.4	2	l.		p.	d.	Bosch	h.	l, Bosch	cnt.	motor	Pierce.	1090	13	Stmbg.	g.	s.	c.	Hart	Cotta	id-c.	amid.	3	11.7	Sheldon	Sheldon	Hart	worm	rad-rd.	.....	int-r-w.	int-r-w.	Lvine
U. S. K	5	4550	168*	s.	36x5	40x6d	Wauk.	3	4-4¾x6¾	36.1	2	l.		p.	d.	Bosch	h.	l, Bosch	cnt.	motor	Wauk.	950	12	Stmbg.	g.	s.	dp.	B&Bek.	Cotta	id-c.	amid.	3	8.8	Sheldon	Sheldon	Hart	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine
Universal G	1½	1950	133	*s	34x3½	34x5	Buda.	2	4-3¾x5½	22.5	4	l.		t.	d.	Eismn.			cnt.	motor	own	1160	15	Zenith	g.	s.	dp.	B&Bek.	Covert	selec	unt-m.	3	7.2	own	.....	.....	worm	rad-rd.	.....	int	int	Lvine
Universal D	2	2800	132*	s.	36x4	36x4d	Buda.	3	4-4x5½	25.6	2	t.		p.	d.	Eismn.			cnt.	motor	own	1057	12	Zenith	g.	s.	dd.	own	own	selec	amid.	3	9.1	own	.....	.....	d-chn	rad-rd.	.....	ext	int	Lvine
Universal A	3	3400	132*	s.	36x5	36x5d	Buda.	3	4-4x5½	25.6	2	t.		p.	d.	Eismn.	h.		cnt.	motor	own	1057	12	Zenith	g.	s.	dd.	own	own	selec	amid.	3	10.2	own	.....	.....	d-chn	rad-rd.	.....	ext-sht	int-r-w.	Lvine
Velie 25A	2	2750	150*	s.	36x4	36x7	Cont.	3	4-4¼x5½	27.2	4	l.		p.	s.	Bosch	h.	None	cnt.	motor	Pierce.	1008	18	Stmbg.	v.	s.	dp.	own	B-Lipe	selec	amid.	4	7.7	Timkn	Mthr	Spicer	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
Velie 26A	3½	3600	172*	s.	36x5	40x5d	Cont.	3	4-4½x5½	32.4	2	l.		p.	s.	Bosch	h.	None	cnt.	motor	Pierce.	1215	15	Stmbg.	v.	s.	dp.	own	B-Lipe	selec	amid.	4	10.3	Timkn	Mthr	Spicer	worm	rad-rd.	sprgs.	int	int	Gemr
Vim 21	¼	845	108	p.	31x4	31x4	own	3	4-3x4¼	14.4	4	l.		t.	s.	Dixie	h.						25	Zenith	g.	s.	c.	own	own	selec	unt-m.	3	5.25	Sheldon	Sheldon	Spicer	bevel	sprgs.	sprgs.	ext-r-w.	int-r-w.	Jacox
Vim 22	1½	2750	142	p.	36x4	36x6	own	5	4x3¾x5½	22.5	4			p.		Dixie	h.						20	Zenith	g.	s.	dp.	own	own		amid.	4				worm	sprgs.	sprgs	int-r-w.	int-r-w.	
Vim 23	3	3550	150*	p.	36x4	36x4d	own	5	4x4¼x5½	28.9	4			p.		Dixi	h.						16	Zenith	g.	s.	dp.	own	own		amid.	4				worm	sprgs.	sprgs.	int-r-w.	int-r-w.	
Walter F	5	5000	156	s.	40x6	40x6d	own		4-4½x6¾	36.1	4			p.	s.	Eismn.	f.	s, l West		motor	own	1000		H&N	g.		dp.	own	own	selec	amid.	4	8.0	own	Merl	.....	int-g-4	sprgs.	sprgs.	int-r-w.	ext-sht	own
Watson Tractor	5	4050	80	s.	36x4	40x5d	Cont.	3	4-4½x5½	32.4	2	l.		p.	d.	Bosch	h.		cnt.	motor	Pierce.	1100	11	Zenith	g.	s.	dd.	B-Lipe	B-Lipe	selec	amid.	4	11.6	Timkn	Sheldon	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr
White GBBE	¾	2300	133½	p.	34x4½	34x4½	own	2	4-3½x5½	22.5	4	l.	m	p.	s.	.....	h.	s, l*			none			own	g.	s.	p.	own	own	selec	amid.	4	....	own	.....	own	bevel	rad-rd.	rad-rd.	int-r-w.	ext-r-w.	own
White TBC	1½–2	3300	157½	s*	36x3½	36x3½d	own	2	4-3¾x5½	22.5	4	l.	m	p.	s.	.....	h.	s, l*			none			own	g.	s.	p.	own	own	selec	amid.	4	....	own	.....	own	d-red	rad-rd.	rad-rd.	int-r-w.	ext-r-w.	own
White TAD	3	4100	163	s.	36x5	40x5d	own	2	4-3¾x5½	22.5	4	l.	m	p.	s.	.....	h.				none			own	g.	s.	p.	own	own	selec	amid.	4	....	own	.....	own	d-chn	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own
White TCD	5	5000	169	s.	36x5	40x6d	own	3	4-4¼x6¾	29.0	4	l.	m	p.	s.	.....	h.				none			own	g.	s.	p.	own	own	selec	amid.	4	....	own	.....	own	d-chn	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own
Wichita A	1	1750	110*	s.	34x3	34x4	own	2	4-3½x5	19.6	4	l.		t.	s.	Bosch	h.	s, l			none		15	Stmbg.	g.	s.	c.	own	Covert	selec	unt-j.	3	7.3	Sheldon	.....	.....	d-chn	rad-rd.	t-arm	int-r-w.	int-sht	Ross
Wichita K	1	1750	118*	s.	36x3	36x4	own	2	4-3½x5	19.6	4	l.		t.	s.	Bosch	h.	s, l			none		15	Stmbg.	g.	s.	c.	own	Covert	selec	amid.	3	7.8	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Wichita L	1½	1950	118*	s.	36x3	36x5	own	2	4-3½x5	19.6	4	l.		t.	s.	Bosch	h.	s, l			none		15	Stmbg.	g.	s.	c.	own	Covert	selec	amid.	3	8.6	Sheldon	.....	.....	worm	sprgs.	sprgs.	ext-r-w.	int-r-w.	Ross
Wichita B	2	2250	118*	s.	34x3½	34x6	own	2	4-3½x5	19.6	4	l.		t.	s.	Bosch	h.	s, l			none		13	Stmbg.	g.	s.	c.	own	Covert	selec	unt-j.	3	8.2	Sheldon	.....	.....	d-chn	rad-rd.	t-arm	int-r-w.	int-sht	Ross
Wichita R	2½	2500	144*	s.	36x4	36x7	Wauk.	3	4-3¾x5½	22.5	4	l.		p.	s.	Bosch	h.	s, l	cnt.	motor	Wauk.	1060	13	Stmbg.	g.	s.	c.	own	Covert	selec	amid.	3	10.6	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Wichita O	3½	3450	165*	s.	36x5	36x5d	Wauk.	3	4-4½x5½	32.4	2	l.		p.	s.	Bosch	h.	s, l	cnt.	motor	Wauk.	1200	11	Stmbg.	g.	s.	c.	Hart	Covert	selec	amid.	3	11.7	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Wichita Q	5	4000	165*	s.	38x6	38x6d	Wauk.	3	4-4½x5½	32.4	2	l.		p.	s.	Bosch	h.	s, l	cnt.	motor	Wauk.	940	9	Stmbg.	g.	s.	c.	Hart	Covert	selec	amid.	3	13.7	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Wilcox S	1	1825	128	p*	35x5*	35x5*	Cont.	3	4-3¾x5	15.6	4	l.		t.	s.	Bosch	h.	l, West	cnt.	motor	Pierce.	1200	18	Stmbg.	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	6.5	Sheldon	Sheldon	own*	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
Wilcox X	1½	2425	144	s.	36x4	36x5	own	3	4-4½x5	29.0	2	l.		p.	s.	Bosch	h.	l, West	cnt.	motor	Pierce.	1100	16	Stmbg.	g.	s.	c.	own	own	selec	amid.	3	7.7	Sheldon	Sheldon	own*	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
Wilcox Q	2	2750	150*	s.	36x4	36x3½d	own	3	4-4½x5	32.4	2	l.		p.	s.	Bosch	h.	l, West	cnt.	motor	Wauk.	1100	14	Stmbg.	g.	s.	c.	own	own	selec	amid.	3	8.7	Sheldon	Sheldon	own*	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
Wilcox P	3½	3425	154*	s.	36x5	36x5d	own	3	4-4½x5	29.0	2	l.		p.	s.	Bosch	h.	l, West	cnt.	motor	Pierce.	1100	10	Stmbg.	g.	s.	c.	own	own	selec	amid.	3	11.7	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
Wilcox W	5	3475	162	s.	36x5	40x6d	Wauk.		4-4½x6¾	36.1	2			p.	s.	Bosch	h.		cnt.	motor	Wauk.	1000	14	Stmbg.	v.		dd.	own	own	selec	amid.	4	8.7	Sheldon	Sheldon	Spicer*	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
Wilson	1	1650	124*	s.	34x3½	34x4	Cont.	3	4-3½x5	19.6	4	l.		p.	s.	Eismn.	f.					1800	18	.....	g.	s.	dd.	.....	Covert	selec	unt-m.	3	....	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Wilson E	2	2550	144	s.	36x4	36x4d	Cont.	3	4-4¼x5½	27.2	4	l.		p.	s.	Eismn.	f.		cnt.	motor	Pierce.	1050	15	Marvel	g.	s.	c.	Hart	Covert	selec	amid.	3	8.6	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Wilson	3½	3250	160	s.	36x5	36x5d	Cont.	3	4-4½x5½	32.4	4	l.		p.	s.	Eismn.	f.		cnt.	motor	Pierce	1100	12	Marvel	g.	s.	dd.	Warner	Warner	selec	amid.	4	8.75	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Wilson	5	.....	160	s.	36x6	40x6d	Cont.	4	4-4½x5½	32.4	4	l.		p.	s.	Eismn.	f.		cnt.	motor	Pierce.	1100	10	Marvel	g.	s.	dd.	Warner	Warner	selec	amid.	4	10.2	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Winther 48	2	2800	150	s.	36x4	36x4d	Wis.	1	4-4x6	25.6	4			p.	s.	Eismn.	h.	Bijur	cnt.	motor	Duplex	1100	15	Master	v.	d.	dp.	B&Bek.	own	selec	amid.	4	8.1	Clark	Mthr	Blood	int-g.	sprgs.	sprgs.	ext-r-w.	int-r-w.	Ross
Winther 68	3	3600	150	s.	36x5	36x5d*	Wis.	1	4-4x6	25.6	4			p.	s.	Eismn.	h.	Bijur	cnt.	motor	Duplex	1300	14	Master	v.	d.	dp.	B&Bek.	own	selec	amid	4	10.0	Clark	Mthr	Blood	int-g.	sprgs.	sprgs.	ext-r-w.	int-r-w.	Ross
Winther 88	4	4000	156	s.	36x5	.....	Wis.	1	4-4½x6	28.9	4			p.	s.	Eismn.	h.	Bijur	cnt.	motor	Duplex	1300	12	Master	v.	d.	dp.	B&Bek.	own	selec	amid.	4	12.5	Clark	Mthr	Blood	in-tg.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Winther 108	5	4600	162	s.	36x5	40x6d*	Wis.	1	4-4½x5½	36.1	2			p.	s.	Eismn.	h.	Bijur	cnt.	motor	Duplex	1100	10	Master	v.	d.	dp.	B&Bek.	own	selec	amid.	4	12.5	Clark	Mthr	Blood	int-g.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Winther 128	6	5000	162	s.	36x6	40x7d*	Wis.	1	4-5¼x5½	42.0	2			p.	s.	Eismn.	h.	Bijur	cnt.	motor	Duplex	1100	10	Master	v.	d.	dp.	B&Bek.	own	selec	amid.	4	12.5	Clark	Mthr	Blood	int-g.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Witt Will WD16	1	2000	120	s*	36x3*	36x4*	Cont.	3	4-3¾x5½	22.5	4	l.		p.	s.	Eismn.	a.		cnt.	motor	Pierce.	.....	...	Zenith	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	....	Timkn	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Witt Will WD16	2	2500	144	s.	36x3½	36x7	Cont.	3	4-4½x5½	27.2	4	l.		p.	s.	Eismn.	a.		cnt.	motor	Pierce.	.....	...	Zenith	g.	s.	dd.	B-Lipe	B-Lipe	selec	unt-m.	3	....	Timkn	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Wisconsin B	1½	1650	136	s.	34x3½	34x4	Wauk.	3	4-3¾x5½	19.6	4	l.		p.	s.	Eismn.	h.		cnt.	motor	Wauk.	1200	15	Master	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	7.7	Sheldon	Sheldon	Blood	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
Wisconsin C	2½	2800	156*	s.	36x4	36x6*	Wauk.	3	4-4x5½	25.6	2	l.		p.	s.	Eismn.	h.		cnt.	motor	Wauk.	1100	14	Master	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	8.7	Sheldon	Sheldon	Blood	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
Wisconsin E	5	5000	166	s.	36x6	40x6d	Wauk.	3	4-4¼x6¾	36.1	2	l.		p.	s.	Eismn.	h.		cnt.	motor	Wauk.	1300	12	Master	g.	s.	dd.	B&Bek.	Cotta	id-c.	unt-m.	3	11.5	Sheldon	Sheldon	Blood	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
W. S. 4	3½		154	s.	36x6	36x6	Cont.	3	4-4¼x5½	27.2	2			p.	d.	Natl	h							Zenith	g.	s.	d.	Fuller	Fuller	....	unt-m.	3		Timkn			wm-4	sprgs.	sprgs.	int.	int	Ross

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A Department of

BETTER MECHANICS

No. 55

Packard Twin Six Standard Adjustments

3-25 and 3-35 Models

By S. T. Williams

THE following adjustments are specific in their nature, and will enable the mechanic to make most necessary adjustments on Packard 3-25 and 3-35 models. By their use rule-of-thumb settings will be avoided, and the mechanic will be able to obtain the correct adjustment in minimum time.

Carbureter Adjustments

A sectional view of the carbureter is shown in Fig. 1. If it is necessary to clean out or check up the spray plug nozzle a No. 53 drill should be used, as this is the proper size to assure satisfactory operation. When correctly adjusted, the float valve will shut off the gasoline so that the upper surface of the liquid is ⅛ in. below the top of the jet. If the level be higher than this the mixture will tend to be too rich, and if lower too lean.

Air Control Rod

With the carbureter air control cam in the idling position, the knob on the air control rod should be in No. 4 notch to give the correct setting. When this knob is pulled out as far as possible, both the choke valve and the auxiliary air valve should just close. The air control rod should be adjusted to these settings.

Auxiliary Air Valve Springs

The outside spring of the auxiliary air valve should be set so that the valve is just seated when the adjusting cam is set so that a vertical line will just bisect the angle between the carbureter camshaft levers. To do this:

1—Set the carbureter camshaft levers so that they make equal angles on each side of a vertical line between them.

2—Loosen the lock nut at the top of the auxiliary air valve stem and turn the adjusting nut until the valve just seats.

3—Lock the nut in this position, and check up the adjustment.

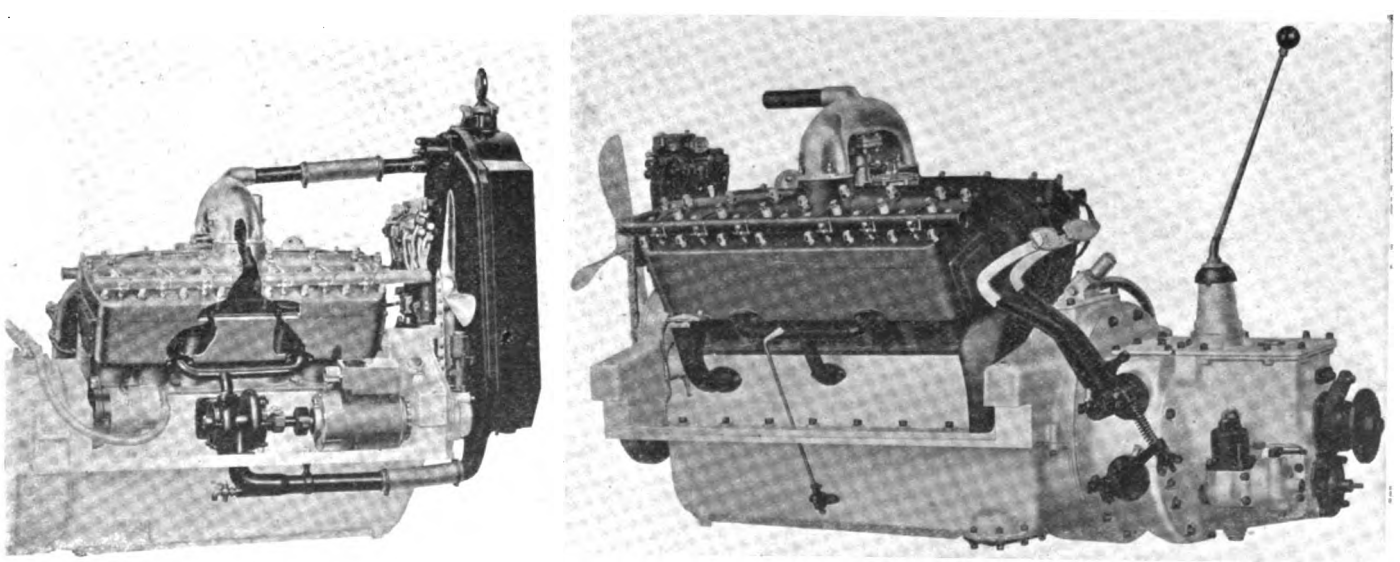
After the air valve cam has been set for the best possible idling position, the valve should have 5/32 in. drop before striking the inner air valve spring.

To insure proper operation, the accelerator pedal should be adjusted until it comes within 3/16 in. of the toe board, with the throttle wide open. The air pressure on the gasoline tank should register from 1½ to 2½ lb. on the gage.

Engine Adjustments

Quiet and smooth operation requires that the valve mechanism be correctly timed and adjusted to the proper clearances. In setting the cam shaft, it is only necessary to crank the engine until the arrow on the crank shaft gear points up in line with the arrow on top of the front end cover; then turn the cam shaft gear until the arrow on it points in the same direction, and apply the timing chain. This chain should have a total free movement of ⅝ in.

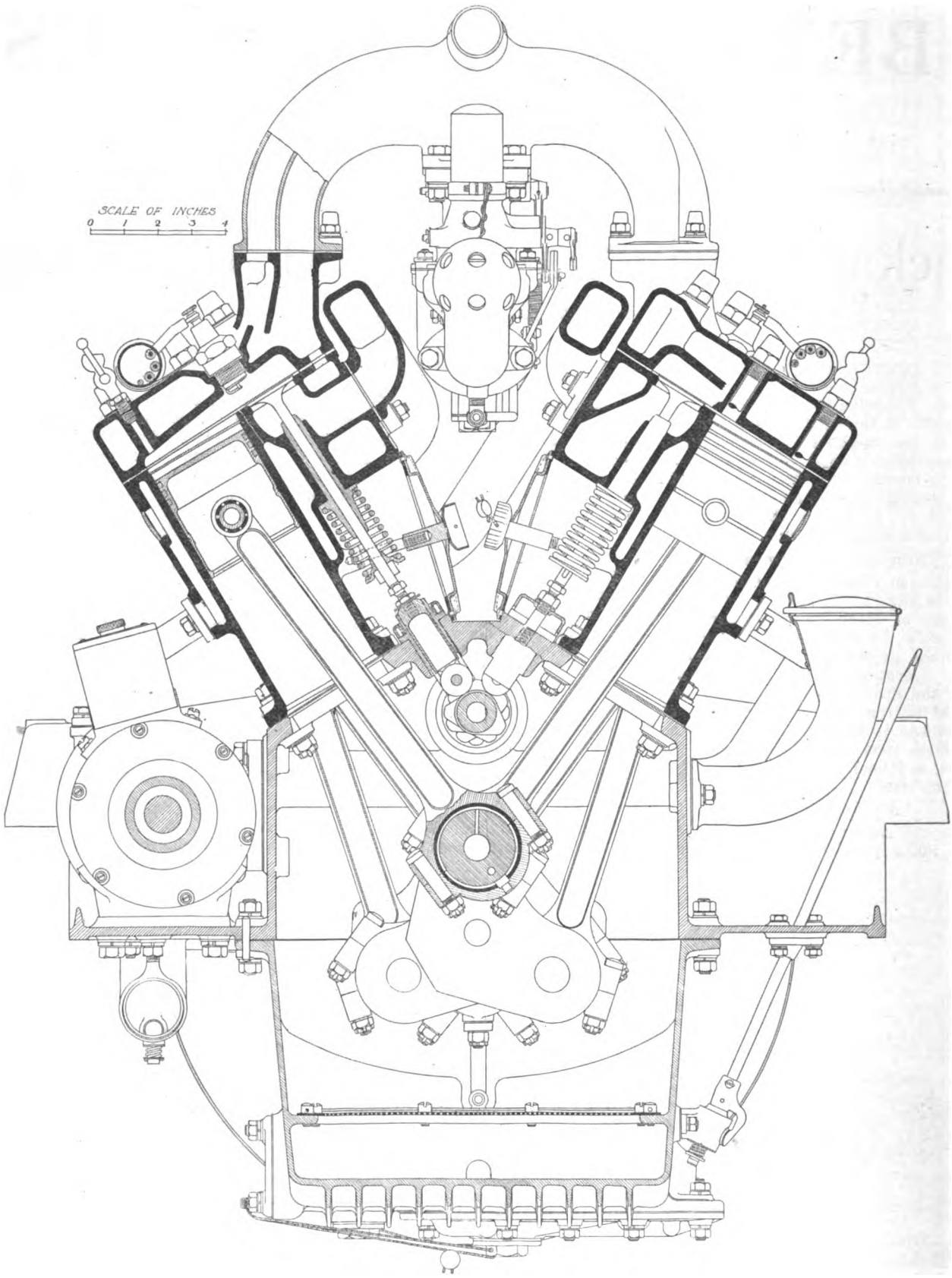
The permissible limits of clearance at



The Packard Twin-Six engine is easy of access and the various component parts are so arranged that repair and adjustment are facilitated. The detachable head makes valve grinding and carbon removal a simple matter

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1918 Packard Twin Six Engine



Cylinders in the Series Three engine are 3 by 5 in., cast in two L-head blocks. This illustration gives a good idea of the valve action

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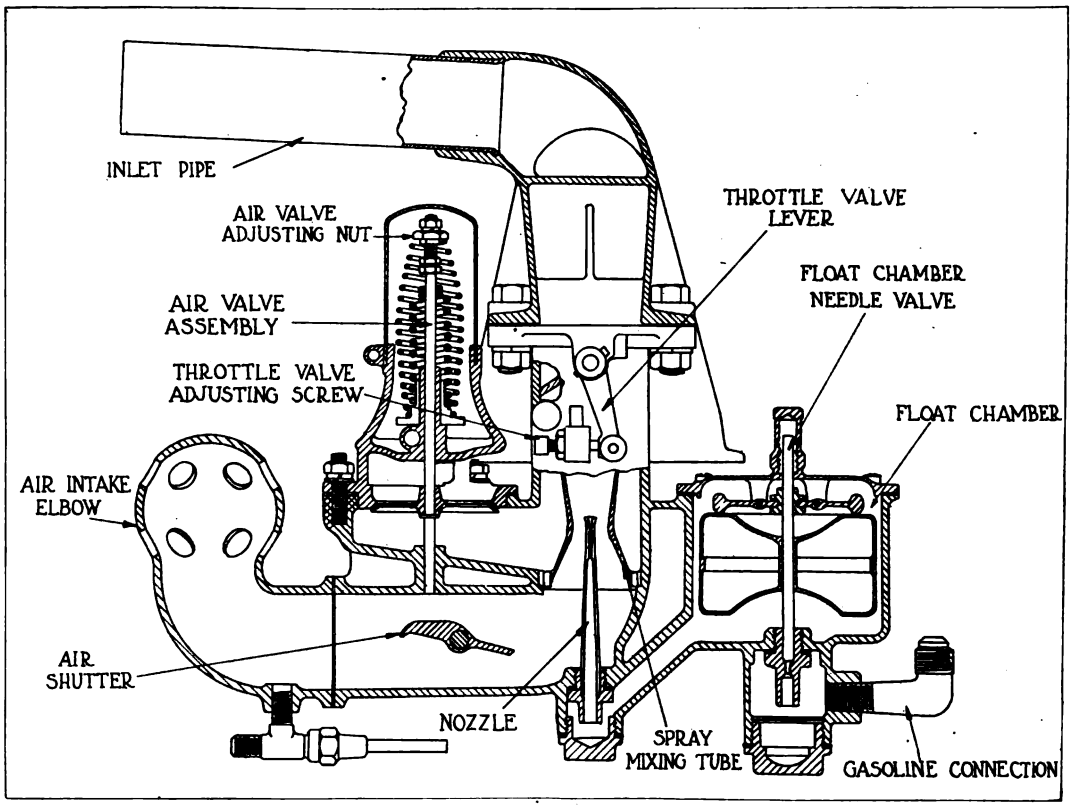


Fig. 1— The Packard carbureter has but a single spray nozzle. The cored manifold and the cored intake passages in the cylinder heads are waterjacketed. If this sectional view is consulted when adjustments are necessary, it will give the understanding that is essential to good work

the exhaust valve stem guide are .004 to .0065 in. and those at the inlet valve stem guides are .0025 to .004 in. The clearance at the exhaust valve stem guides must necessarily be greater, as the exhaust valves run at a higher temperature and expand more.

Contrary to the usual practice, the valve tappet clearance is adjusted with the engine cold, and all of the tappets are set to a standard clearance of .004 in. With these adjustments made, providing the piston, rings and valves are in good condition, the compression should not vary 3 lb. either side of 75 lb. on the gage, with the engine cold, throttle wide open and turning at 120 r.p.m. This is equivalent to about 2.5 miles per hour in high gear.

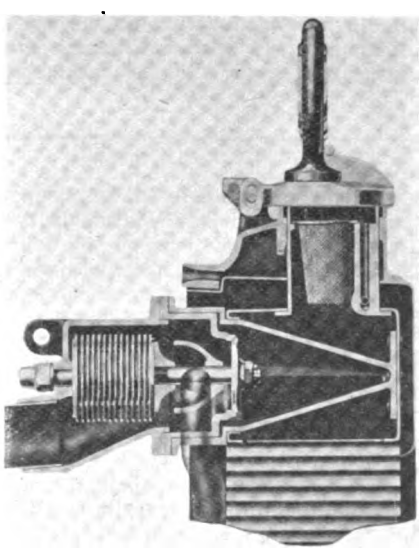
Ignition Pointers

Retiming of the spark should not be necessary unless previous disassembling has disturbed the arrangement of the related parts. The breaking and distributing mechanism should be so set that, with the spark lever fully advanced, the spark occurs 2⅝ in. before upper dead center as measured on the outer circumference of the flywheel. The setting should be made on No. 1 cylinder, which is the forward cylinder on the right, when sitting in the car. The distributer head may be removed and the terminal of No. 1 cylinder is marked.

At all times the breaker points should be smooth and parallel, and the gap should not be less than .015 in. or more than .020 in. As is the case in all multicylinder engines, since the lowering of the grade of gasoline in use, too much emphasis cannot be placed on the necessity of having the spark gaps on all of the plugs uniform. These gaps should not vary more than .002 from 1/32 in. in any case, and a dime may be used as a convenient gage in making the setting.

Bearing Clearances

It is essential in setting the bearings on the engine that certain definite clearances be allowed, and that, as far as possible, guess work adjustments be avoided. The following table shows the proper clearances for the bearings of this engine.



This is the thermostatic controller which regulates the circulation of the cooling water so as to maintain a constant temperature

Main bearings, .0015 to .002 in. clearance.

Connecting rod bearings, .001 to .0015 in. clearance.

Crankshaft, .003 to .005 end play.

Connecting rods, .004 to .005 side play on shaft.

Oil Pump Pressure

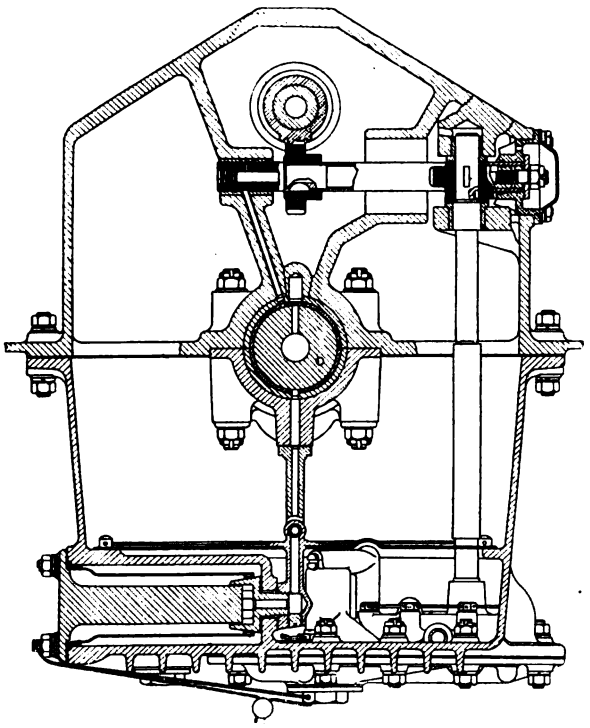
At a speed of from 20 to 25 miles per hour, with the engine warmed up, the oil pump pressure should be from 20 to 25 lbs., as shown by the gage on the dash. Failure of the gage to show pressure, after the engine has been running for a few minutes, is an indication of a stoppage in the cylindrical strainer or oil pipes, providing a supply of oil is in the sump. A cold engine will show a higher oil pressure than a warm one, but continued high pressures indicate a stoppage of the oiling system. In either case, the engine should be stopped and the cause determined.

Due to the low grade of gasoline in common use, condensation causes a more rapid thinning of the oil in cold weather. For this reason the oiling system should be drained every 600 miles during the winter months. Plugs for this purpose are provided in the bottom of the crank case and in the oil pump housing. The crank case should be flushed with kerosene poured through the oil filler, but the engine should not be run with kerosene in the system. Fresh oil to the level of the petcock should first be replaced.

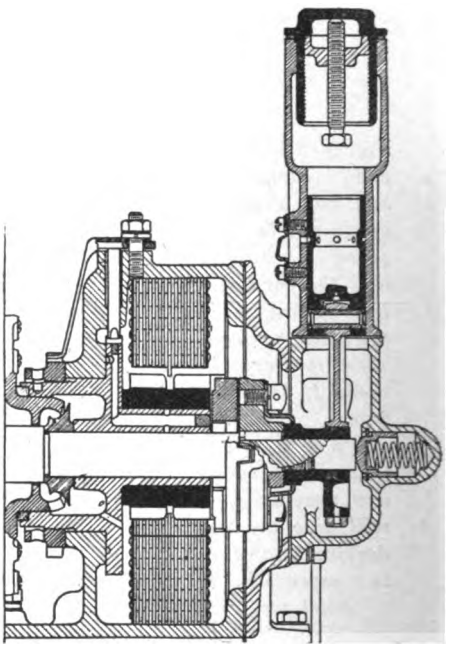
Vibration Damper Adjustments

The vibration damper is on the front end of the crank shaft, and on the 3-25 and 3-35 models, having cast iron pistons, should be adjusted to slip under a pull

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This is part of the lubrication system of the Packard twelve showing the location and construction of the oil pump and also the screen through which the oil is pumped



The camshaft is driven by a triangular-drive silent chain in the Packard twelve, and there is means for adjusting the chain for stretch

of approximately 140 lb. On the previous models—2-25 and 2-35—the pull was approximately 95 lb.

To check this adjustment, the fan belt should be removed and a rope wound around the pulley on the crank shaft. A hand scale is hooked into the free end of this rope, and the stud springs in the face of the pulley adjusted until the pulley just slips under a pull not more than 5 lb. either side of 140 lb. in the case of 3-25 and 3-35 engines having cast iron pistons.

Regulator Voltage

At an engine speed equivalent to 20-25 miles per hour, the generated voltage should be from 7.3 to 7.8 volts. If this is not the case, no adjustment should be attempted. The entire unit should be removed, a new one installed and the old unit sent either to the Packard factory or to the Bijur company.

Miscellaneous Adjustments

The front wheels should be set to toe in from ⅜ to ⅛ in. less in front than at the rear of the wheels, as measured on the center line of the wheels. The steering knuckle stops should be set to give 4¾ in. clearance between the spring and the inside of the felloe band. This will give the minimum turning radius.

The clutch brake should be so adjusted that when the clutch pedal is pushed down against the floor board the spring is compressed from 3/32 to ⅛ in. The necessary adjustments can be made by sliding the whole assembly along the slot in the clutch cover.

The front wheel bearings should be adjusted by first tightening up the adjusting nut with a wrench having a handle 12 in. long as tight as the average man can pull with one hand. The adjusting nut should then be backed up one-half turn and locked in this position.

The change speed lever ball should have a clearance of 2 to 2⅛ in. from the instrument board, with the lever in the reverse position, the center line of the ball coinciding with the center line of the engine.

The foot brake connecting rod should normally be in the upper hole of the rocker lever. Though the lower hole gives more leverage, it likewise gives less clearance. The foot brake bands should have a clearance of 1/32 in. all around the drum when released.

The hand brakes may be adjusted at the forward end of the rods connecting with the cam levers. To set the bands concentric, it is necessary to remove the wheels and turn the set screw at the rear of the brake. These brakes should be so adjusted that when the hand lever is in the sixth notch the wheels can no longer be turned by hand.

Minnesota Expects Record Registration

ST. PAUL, Jan. 31—At the rate of probable gain over the registration of automobiles for the three-year period just ended of 191,000, the total for 1918-1920 is expected by the Secretary of State to reach 225,000. The gain for the last triennial was 54,000 cars. With the new total the revenue for the highway fund this year will be $1,125,000. The license fee now is $5 for 3 years as against $1.50 before. Motorcycles, which will pay $5, number 11,000, and no increase is expected.

Detroit Needs Tool Designers

DETROIT, Jan. 31—There is a big demand for tool designers and draftsmen throughout the industrial districts of this section of the country. Advertisements are appearing in the daily press promising high wages and participation in liberal bonus plans. The rate of pay averages about 65 cents per hour with time and one-half for overtime to start. Pattern makers and other specialized men are also in demand.

Rockford Dealers on Cash Basis

ROCKFORD, ILL., Jan. 31—At a recent meeting some of the principal members of the Rockford Automobile Dealers' Assn. voted to go on a cash basis and also to use the trade acceptance system. The Joslyn Automobile Co. has cut down the number of its charge accounts from 1250 to 207, and will do all other business for cash or acceptance, the latter being due on the 10th of the month following the date of purchase.

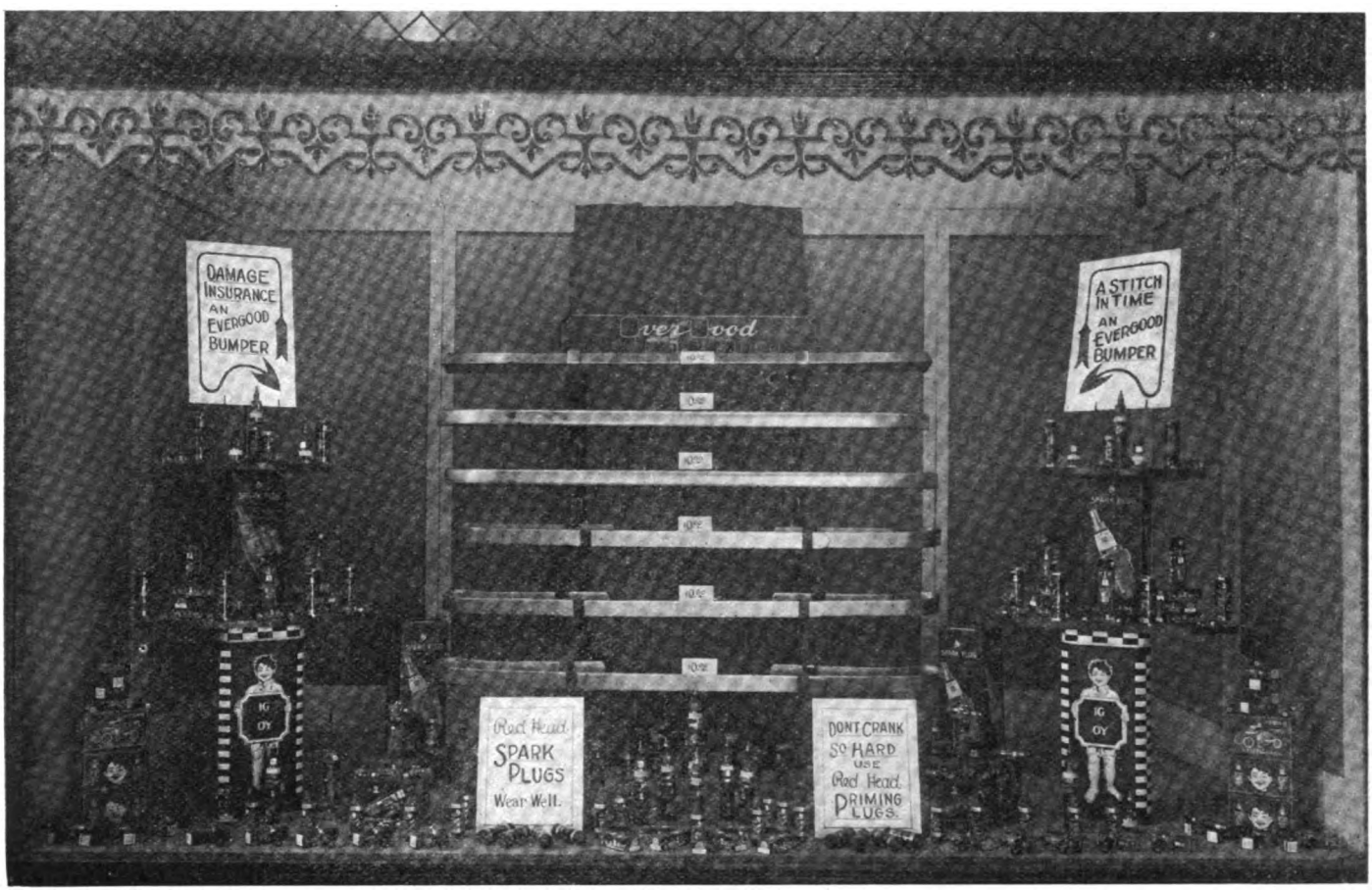
Tractor School in California

LOS ANGELES, Jan. 31—To hasten the coming of the motor on the farm the University of California in February will conduct a tractor course at the citrus experimental station maintained by the university at Riverside. A tractor course held recently at Davis, Cal., was attended by 184, most of them practical ranchers and many of them men of middle age and well-to-do land owners. They came from every part of California and some were registered from Pennsylvania, Illinois, Mexico and Peru.

The experts in agricultural engineering of the university and the demonstrators sent by a number of tractor factories will give talks and exhibitions during the course on how to use tractors economically, how to care for ignition systems, lubrication and valve timing

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Motor World Window Service



How to Set Up This Display

The bumper stand, with bumpers attached, is the feature of this window. The price signs are only a suggestion of how to place them after the actual price has been made.

On each side of the bumper stand are the cartons supplied by the Emil Grossman Corp. They are used as pedestals for the display of the spark plugs. On each side are 24 in. oak shelves, but glass or cardboard may be used, or even packing case boards covered with crêpe paper or cloth will serve.

On top of these shelves are two spark plug cartons supporting 18-in. round shelves. The signs shown can be secured from any local sign writer at a nominal cost.

The material displayed behind the Evergood bumper may be red broadcloth, rep, cheesecloth, or crêpe paper. The color harmonizes with the spark plug boxes, bringing the whole display into prominent relief. This window will attract immediate and favorable attention.

Use These 3 Letters

Bumper Letter No. 1

Wouldn't it be fine if you could insure yourself against dying at all or *against having an accident?* You would consider your premiums well invested.

The first of these you can't do. The second you can—to a great extent.

Safety first!

Use foresight.

Think how you can *prevent* accidents.

Prevention is better than cure.

An Evergood Bumper may save you a broken leg—or neck—and a large repair bill besides.

Compare the cost of a bumper with the cost of a doctor, hospital and repair bill combined!

Come in and ask our bumper man. A car without a bumper is like a locomotive without a cowcatcher. It isn't finished.

P. S. The Evergood is ornamental, too.

Bumper Letter No. 2

Suppose somebody backs without warning and scrapes six dollars' worth of nice fresh finish off your new car. He also bends one of your fenders slightly and breaks a lamp.

You don't insure against these little things.

Perhaps he pays you for the damage—we say, perhaps—but at the best you are subjected to delay, annoyance and inconvenience, and at the worst to all these, plus expense.

Not all collisions are fatal, of course, but nearly all do some damage.

If your car is equipped with an Evergood Bumper the damage is always minimized — often wholly prevented.

The bumper doesn't mind bumps. The car does.

The car isn't built to stand them. The bumper is.

Don't take chances.

A bumper to-day may save a bump to-morrow.

Look at our window. Then come in and ask us.

P. S.—You had better have one at the rear, too. You can't see what the man behind you is doing.

Bumpers and Plugs

Do you see the connection between a spark plug and a bumper?

We are displaying both in our window and we think the display and the idea are both good.

No spark plug—no bumper.

If your car is idle it needs no protection. The more active it is the more chances there are that you may have a collision.

The better spark plug you use the more certain you are of prompt and continuous action.

Therefore equip your car with an Evergood Bumper.

BUT

If your engine doesn't answer instantly every demand made upon it, get Red Head plugs and avoid the result of others' carelessness. Prevent collisions by getting out of the way quickly.

This spares your bumper for some other time.

See the connection? Come, look at the display.

P. S.—These are not the only things we sell.

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Repairshop Shortcuts

From The Motor World Roadman

No. 1538—SHOP BENCH SYSTEM

It is not the usual custom to clearly define the limits of each individual repair stall, and to separate portions into corresponding divisions. By so doing, however, each car is allotted the necessary amount of space, and the mechanic is enabled to keep the parts and tools of any one job together at all times. Such a division may be readily accomplished by separating the repair bench off into 9 ft. divisions by wooden partitions. A vise is provided for each division, and the car to be repaired is placed heading into its stall.—Buick Service Station, Detroit.

No. 1539—SPECIAL WRENCHES FOR DORT TAPPETS

The illustration shows three convenient wrenches for adjusting the tappets with relation to the valve-stem on all Dort cars. They are 3/16 in. thick at the jaws and are cut to fit the tappet, the jam-nut and the screw respectively. By their use the adjustment is made in a few minutes; a work of considerable time and difficulty with a standard wrench.—C. C. Spreen, Flint.

No. 1540—TORCH LIGHTER

When burning the terminals of a storage battery in place, or in doing welding work, it is necessary to continually light and re-light the torch. This may be quickly done by means of an electrical device, similar to a cigar lighter and operated from several dry cells. These cells are connected to an ordinary kick coil of the type used in make and break ignition systems. One end of this coil is attached to the torch rest and the other to a post bearing a brass spring. When the end of the torch is whipped over this spring the breaking of the current creates a spark jumping to the tip and lighting the torch.—E. Moore, Auto Electric Service Station, Detroit.

No. 1541—TOWING DOLLY

Two brake drums, one larger than the other, may be used as the tuning table of a towing dolly. A channel crossbar is attached to the upper drum and carries the axle of the wrecked car. The lower drum is bolted to the dolly axle, which carries two steel wheels on roller bearings. A feature of this dolly is that the towing pull may be offset to counteract the resistance when only one wheel is out of commission.—W. J. Stewart, Jr., Buick Motor Co., Pittsburgh.

$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay $1 for each Repairshop Shortcut that is accepted for publication. Some day we hope to print a record of some kind showing who has earned the most "shortcut dollars." The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to spelling, print it in capital letters with your pencil.

No. 1542—JIG FOR TRUING WIRE WHEELS

The illustration clearly shows an easily made wooden stand or jig for truing up wire wheels. The center screws are adjusted to the hub and two gauges are provided which indicate any irregularity in the diameter of the wheel or any lateral twist of the rim.—C. E. Bradish, 106 Queensbury Street, Boston.

No. 1543—BATTERY TESTER

As most all automobiles have a storage battery for lighting, starting and ignition system, and about every two weeks the solution must be tested to see that it is about ⅜ or ½ in. above the plates.

By using the method shown the height of solution can be tested. Insert the glass tube until it touches the top of the plates, then close upper end of tube with finger and withdraw the tube from battery and the height of solution in glass tube indicates the height of solution above battery plates.—C. C. Spreen, Flint.

No. 1544—SHOP DRAWING BOARD

Most mechanics do not realize the advantage of a shop drawing in the construction of special tools or in laying out a new method of repair. Not only may the work be accurately outlined in advance, but an accurate record of the job is kept for future reference. As an aid in this work, a swinging drawing-board, extended only when in use, is most convenient. The board is hinged to the wall and provided with a swinging leg that is used to hold it in the upright position. When not in use, it is again swung back flat to the wall out of the way.—Buick Service Station, Detroit.

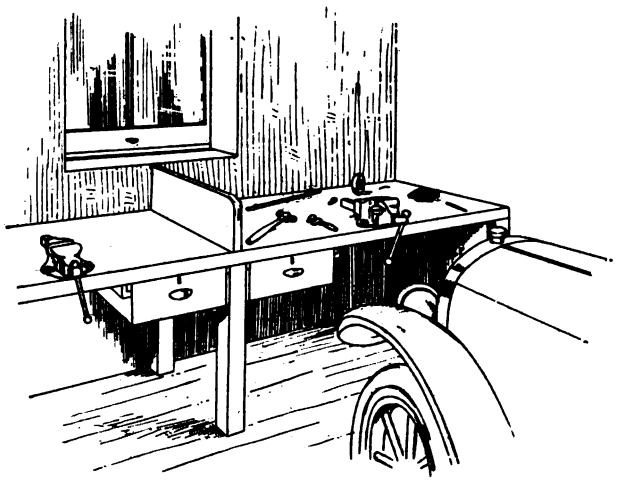
No. 1545—VALVE SEAT REAMER

Valve seats may be quickly reamed to a true surface by means of a special reamer that may be made in any shop possessing a lathe. This reamer comprises a central rod, or guide, threaded in the central portion, and carrying a handle at the upper end, the cutters being pinched between two threaded bushings. The lower end of the central rod, or guide, is of the same diameter as the valve stem, and the threaded portion is enough larger to permit the bushings to be slipped in place. The lower bushing is cut away to hold the cutting tools, which are tool steel, beveled and sharpened to the angle of the valve seat. The upper bushing holds these tools firmly in position. It is advisable to make the reamer of machinery steel.—Buick Service Station, Detroit.

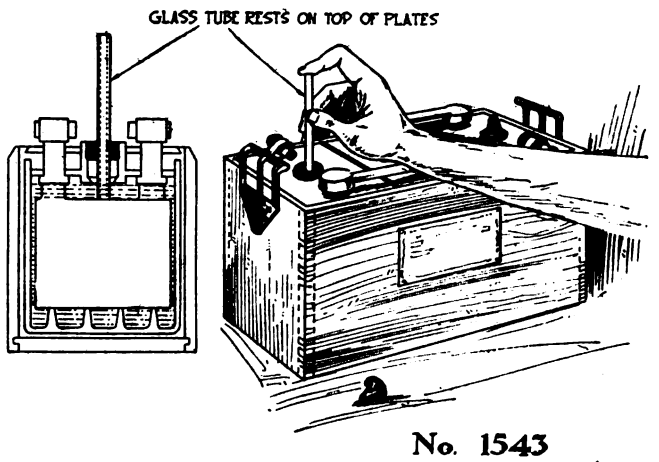
No. 1546—VENTILATING FAN

Particularly in summer, the problem of maintaining a circulation of air through the shop and preventing the accumulation of dangerous gases, is always present. Small amounts of exhaust gas, or gasoline vapor, tend to lower the efficiency of the workmen and large amounts are positively dangerous to life. In many shops a conventional ventilator is provided, and a more positive circulation of air may be induced by a power-driven fan mounted in a wooden housing at the bottom of the ventilator. Such a fan may be steel, of the propeller type, and mounted at the end of a jack shaft, belt-driven from the power line, or an individual motor may be used. In some shops discharge through the roof is impossible and here a side wall outlet is necessary. But the health, efficiency, comfort and safety of the workmen is promoted by the installation of some means whereby the exhaust gases may be removed from the shop.—Buick Service Station, Detroit.

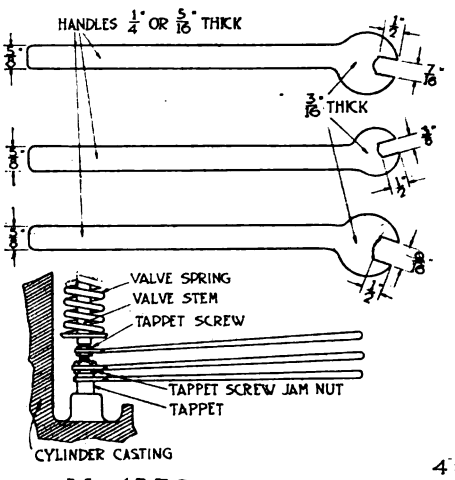
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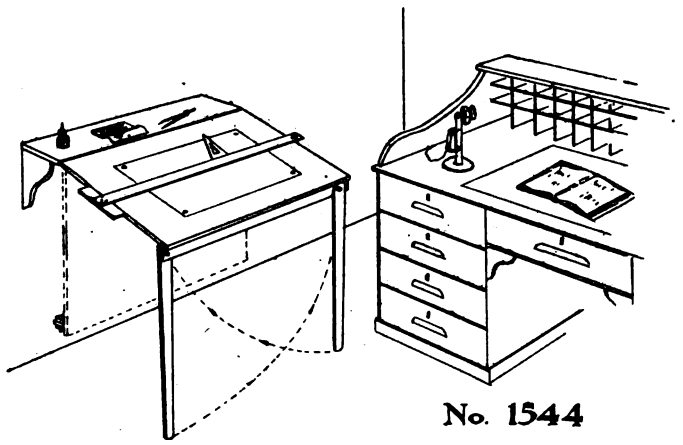
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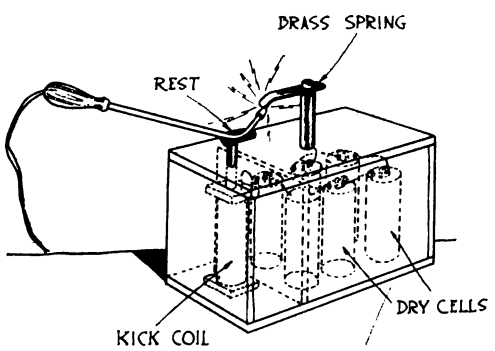
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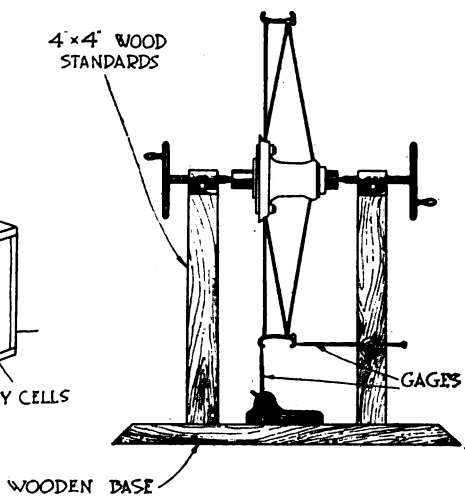
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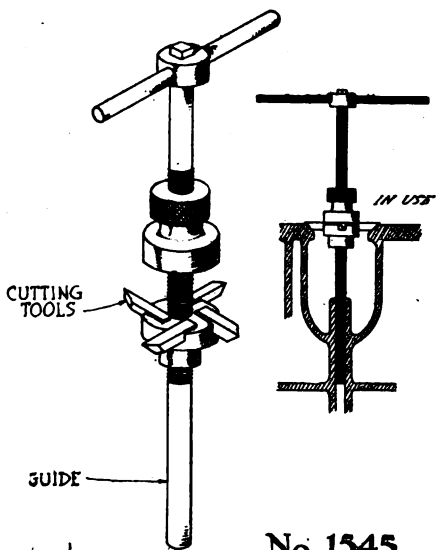
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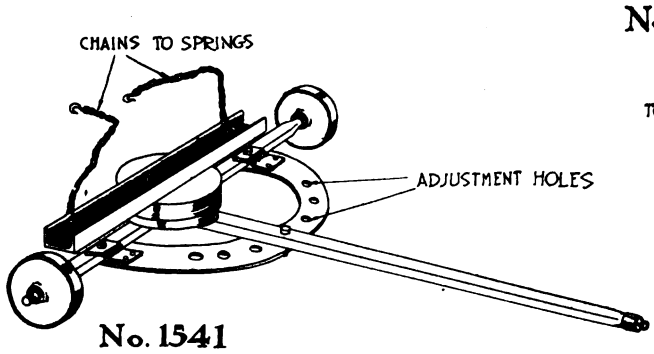
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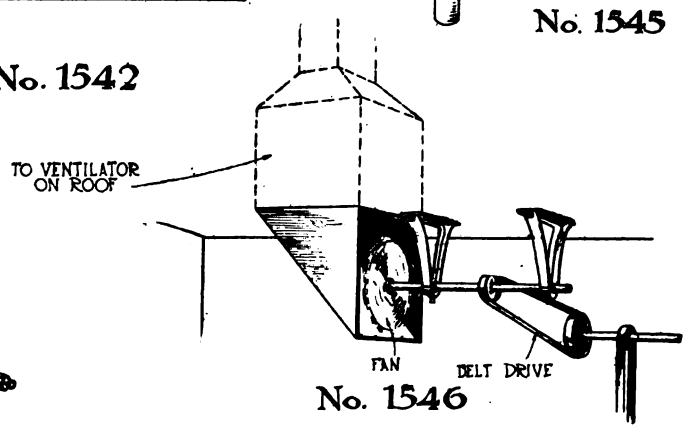
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Winter Business

SAVE
Sugar
Wheat
CARS

EFFICIENT CONSERVATION

Conservation is now a patriotic duty. Conservation is not parsimony. Conservation is wisdom.

And, curiously enough, we are beginning to realize that by SAVING WISELY we actually do more business than under the wasteful conditions to which we have become accustomed.

Is a customer undecided whether to buy a new car or make the old one do for one more season? Here is a chance to test your wisdom, your patriotism and your honesty all at once.

There is no economy in PATCHING UP a car that isn't worth it. There is no sense in THROWING AWAY a car that simply needs thorough overhauling. There is no honesty in PERSUADING a customer in either case to decide against his own interests.

You are the expert—the consulting engineer. The customer looks to you for unprejudiced advice. Let him not be mistaken. If his experience shows him you are right he will remember you.

If he finds that your advice has put a few dollars in your pocket at a useless cost to him he will also remember you.

But OH, what a DIFFERENCE!

Now—to get down to what we started to say—NOW is the time to make this decision. Countless cars now need overhauling. Don't wait until spring. Do it NOW. Save the good old cars. Make them as good as new. There will not be as many new cars as usual next spring anyway. The Government needs much of the factory space and output.

AND IT IS GOING TO NEED MORE.

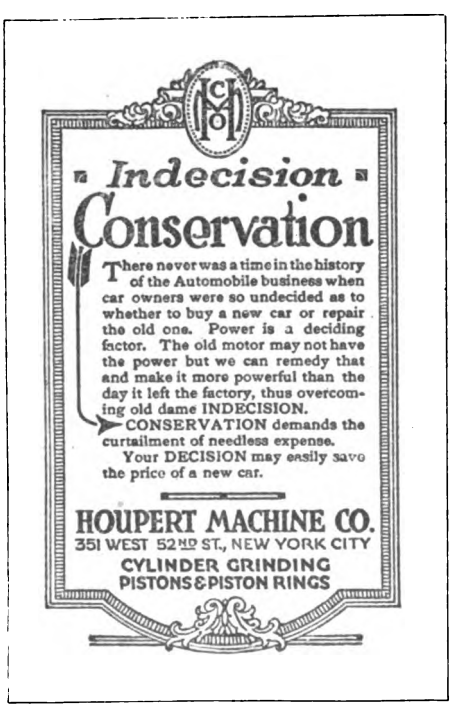
Don't do your bit. A bit is not enough. Do your ALL. Preach conservation; practice conservation; work for conservation.

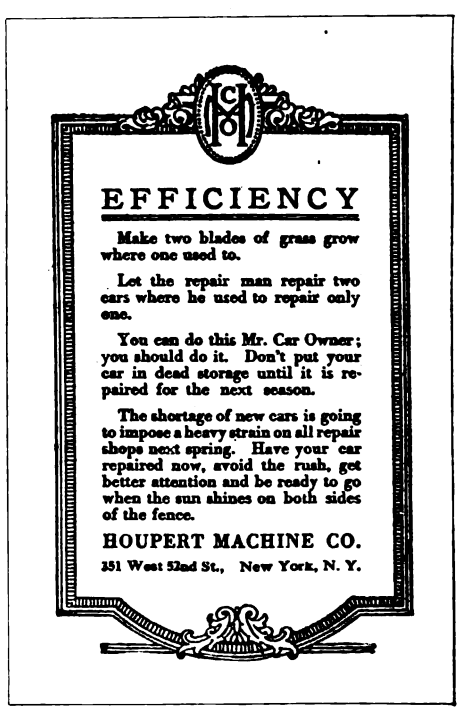
Conservation is good business.
And NOW is the time.
It is wisdom.
It is patriotism.

Conservation and Winter Business

THE Houpert Machine Co., New York, has issued this excellent Winter Business suggestion. The story is all there and deserves careful attention. There is no end of cars that need repairing now, and unless they get it now they will add to the congestion when the spring rush comes. Many an old car, properly overhauled now, will give good service later, and the money saved through such wise conservation will come in very handy when a new car is really needed.

These suggestions are shown here to be used. Use them. Tell your customers why they should take this time to make their repairs. Tell them why they should make more repairs now than ever before. Make every old car a new car. It is your duty to spread the doctrine of economy. In this instance you can make money by it too.





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What Others Think

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Service Should Be Sold

Editor Motor World: All issues of Motor World are good; none bad, but some are better than others. For instance, Jan. 2 issue regarding service, and after reading dealers No. 4, 12 and 13, I could not or at least did not care to read any further.

Before I proceed I will state my position. I have been manager of our firm about 2 months. The firm has been in business 16 months, and in the 16 months we have given away a good many dollars in service and buying used cars (buying them is the proper name in most cases).

In September, 1917, our vice-president saw the light and he put the business on a strictly cash basis, discontinued free service and cut out buying second-hand cars. I understand they did not start the cash business in Chicago until October; at any rate we were the first to start it here, and since several others have dropped in line and I believe by spring you will see all dealers on a cash basis or out of business, and I think the same way about wild trades.

This letter is on service so I will get back on the subject. Section No. 5 of your service story states the custom of giving grease and oil free during the early days of ownership is simply a custom that has arisen because of the dealer's *inability* to offset the owner's belief that service is *something* for *nothing*.

We will sell all service an owner wants, but will not give it to him when we have to pay our mechanics good money for it. This free service is the fault of both manufacturers and dealers. First the manufacturers have smooth sailing, a strictly cash business, no trades, and they encourage the dealer to give service. One reason is because it does not come out of the manufacturer's pockets.

The dealer gives the service because he thinks the cars will stand up better and help him sell more cars; this may be true, but sell it instead of giving it away. If every dealer would sell service instead of giving it away they would sell as many cars.

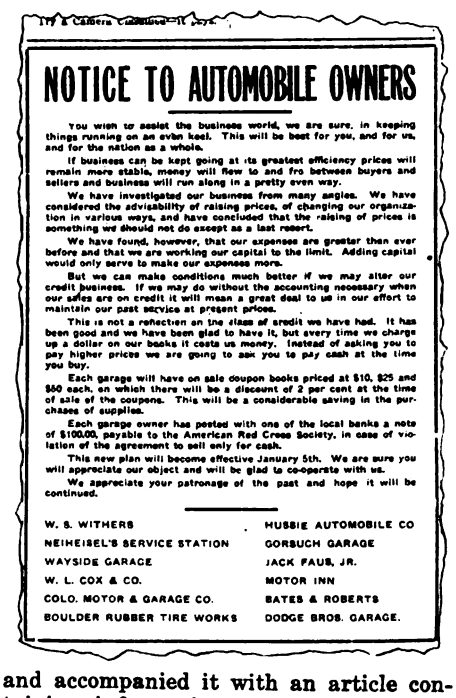
There are a good many cars on the market that require a lot of work to keep them in running order, and if a dealer would keep them in repair for one year he would be out of business at the end of the year.

I figure that only about 25 per cent of the strictly retail dealers have any more money than they did five years ago and the other 75 have less.

The three ways to help make money is, cash business, sell service and cut down trade allowances.—Holmes Automobile Co., Fred. E. Cannon, Manager, Champaign, Ill.

Boulder Accepts Our Suggestion

From Boulder, Col., comes another instance of Motor World's practical value to its readers. In our issue of Dec. 12 we published a suggested letter to customers on the subject of the cash basis



NOTICE TO AUTOMOBILE OWNERS

You wish to assist the business world, we are sure, in keeping things running on an even keel. This will be best for you, and for us, and for the nation as a whole.

If business can be kept going at its greatest efficiency prices will remain more stable, money will flow to and fro between buyers and sellers and business will run along in a pretty even way.

We have investigated our business from many angles. We have considered the advisability of raising prices, of changing our organization in various ways, and have concluded that the raising of prices is something we should not do except as a last resort.

We have found, however, that our expenses are greater than ever before and that we are working our capital to the limit. Adding capital would only serve to make our expenses more.

But we can make conditions much better if we may alter our credit business. If we may do without the accounting necessary when our sales are on credit it will mean a great deal to us in our effort to maintain our past service at present prices.

This is not a reflection on the class of credit we have had. It has been good and we have been glad to have it, but every time we charge up a dollar on our books it costs us money. Instead of asking you to pay higher prices we are going to ask you to pay cash at the time you buy.

Each garage will have on sale coupon books priced at $10, $25 and $50 each, on which there will be a discount of 2 per cent at the time of sale of the coupons. This will be a considerable saving in the purchase of supplies.

Each garage owner has posted with one of the local banks a note of $100.00, payable to the American Red Cross Society, in case of violation of the agreement to sell only for cash.

This new plan will become effective January 5th. We are sure you will appreciate our object and will be glad to co-operate with us.

We appreciate your patronage of the past and hope it will be continued.

W. S. WITHERS	HUSSIE AUTOMOBILE CO
NEIHEISEL'S SERVICE STATION	GORSUCH GARAGE
WAYSIDE GARAGE	JACK FAUS, JR.
W. L. COX & CO.	MOTOR INN
COLO. MOTOR & GARAGE CO.	BATES & ROBERTS
BOULDER RUBBER TIRE WORKS	DODGE BROS. GARAGE.

and accompanied it with an article containing information of value and clear arguments in favor of its adoption. The following letter shows what this has led to in at least one instance:

Editor, Motor World:

The letter printed on page seven of the Dec. 12th issue of the Motor World gave us an idea of how to handle the credit we were extending, and, the idea being suggested to other dealers, whose names are attached to the inclosed, made it possible to run the inclosed notice in our local papers and have the inclosed letter printed, which was given or sent to all our customers and was met with approval by the general public and customers.

We wish to thank you for the idea given and to let you know what benefit we have derived from the Motor World. Hoping that we may in the future still have suggestions from your magazine, we wish to remain, Neisheisel Service Station, William Neisheisel.

First, a co-operative advertising campaign was started, the advertisements bearing the names of the twelve garages participating. The first of these, here shown, was a reprint of our letter with such additions as the local situation required.

Following up the advertisement, a form letter embracing the same facts was sent by each garage to its individual customers.

Free Service Undesirable

Editor Motor World: I was much interested in the letters that appeared in your issue of Jan. 2. For our part, we feel that this matter of service has been abused to such an extent that something radical is necessary to straighten out the situation, which will continue to be a burden so long as it is handled as in the past.

There is no question but that an owner is entitled to a reasonable amount of service, but this should be clearly defined to mean merely those adjustments which might be necessary on a new car, not due to misuse or wear; in other words, it is our opinion that the service should consist of those attentions that might be required on a new car to bring it to proper running shape, and should carry with it the necessary instructions to enable the owner to properly take care of his car himself, and should not be specified in a given number of hours that may be used at the convenience of the owner for any kind of work that he might desire done.

Experience shows that oftentimes just before the expiration of his book or card the automobile is brought into the service station for work whether needed or not, merely to use up the time remaining in the book, and for that reason it fails in its purpose, for it entails work that is in reality not required.

Therefore, as stated previously, if some universal definition of service could be determined it would tend to straighten out the situation which has in the past been much abused. For our part, we believe that sales should be made strictly on the guarantee of the factory building the car, and all work, aside from minor adjustments indicated above, should be charged for, and service should be represented by the facilities provided to take care of such work desired by the owner most economically, both in time and expense.—Vesper Buick Auto Company, St. Louis, F. W. A. Vesper, President.

What do you think?

Write and tell us.

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The RETAIL NEWS

SOUTHWEST

Gordon Addie, Del Rio, Tex., has sold his garage to the Border Tire Sales Co.

The Midland Storage Battery Co., Midland, Tex., has moved to larger quarters in the Spaulding Garage building.

W. A. Bergfield, Sequin, Tex., has bought the Quick Service Garage from Hugo Troell. The building will be remodeled and new machinery and equipment installed.

The Motor Car Supply Co., San Antonio, has moved into larger quarters at 205 East Travis Street.

Johnstown Motor Co., San Antonio, has moved to new quarters on Avenue C.

Sparks Bros.' Garage, Waco, Tex., has been sold to C. E. and T. C. Sparks.

Central Texas Automobile Co., Waxahachie, Tex., has bought the Sims-Thompson garage.

Motor Supply Co., Wichita Falls, Tex., has moved into new quarters at Indiana and Sixth Streets.

A. G. Vleek, Ellsworth, Kan., has bought the garage of Wm. Bender.

J. D. Jones, Kingman, Kan., has bought the Walter Auto Co. garage.

Wilmoth and Christian, Colony, Kan., have bought the garage of C. H. Ferguson.

Roy C. Fowler, Lucas, Kan., has bought the garage of Thorp & Campbell.

Quincy Smith, Osborne, Kan., has bought the Stone Garage.

McKay & Smith, Pittsburgh, Kan., have sold their garage to Benoist and Penimory.

Wm. Johnson, Stafford, Kan., has bought L. Jolly's garage.

B. C. Johnson and Elmer Curnuit, Garnett, Kan., have built the K-T Service station.

Talley Auto Co., Clinton, Mo., is planning to remodel the Hunt Bldg., which it will use as headquarters.

Samuel Bysart, Graham, Mo., has bought the garage of W. C. Wilson.

Ulys Stark, Maysville, Mo., has bought the garage of George Fouts.

L. E. Finnell, Paris, Mo., has bought the garage of C. D. Peck.

Marmon Automobile Co., Joplin, has opened salesrooms.

The Auto-torium, St. Joseph, Mo., will be under the management of F. H. Chambers, secretary and treasurer of the company. The plant will cost $100,000.

Rasmussen & Dorn have opened a Dodge Brothers service station at 407 West Washington Street, Phoenix, Ariz.

Stapleton Motor Co., Oklahoma City, will move shortly to its new home.

W. Crane, Chandler, Okla., has bought his partner's interest in the Crane & Anderson Garage.

H. J. Philbrook, Henryetta, Okla., has bought the accessories stock and leased the garage of L. L. Sullins.

N. Wasson Vulcanizing Plant, Duncan, Okla., has moved to new quarters in the Buckholtz building.

W. H. Shafer, Woodward, Okla., has bought the Motor Inn from Frank Vaughn.

Roger Chastain, Seminole, Okla., has bought the Ford Garage.

Fred Arterberry and S. J. Turk, Claremore, Okla., under the style Motor Supply Co., have opened a repairshop.

O. O. Teeter, Waurika, Okla., has bought an interest in the Mize Motor Co. The firm will be styled Mize-Teeter Motor Co.

Hester & Reynolds, Poteau, Okla., have bought the LeFlore County Auto Co.

W. R. Crowley, Mangum, Okla., has bought out his partner in the garage firm of Henderson & Crowley.

Dellinger-Samuel Motor Co., Oklahoma City, which was recently organized, will occupy quarters at 3 West Main St. J. P. Dellinger, W. R. Samuel and E. R. Selby are in the company.

Lynch Tire Supply Co., Tulsa, Okla., has opened quarters there.

Leon Polk, Sulphur, Okla., has bought the garage of J. O. Curry.

Wilson & Souligny, Ponca City, Okla., have formed a partnership and opened salesrooms.

J. R. Saye, Waurika, Okla., has bought the Narrow Gauge Garage from G. Y. Henderson.

Miami Motor Co., Miami, Okla., has bought the Judd Bros. garage.

R. A. Cook, Little Rock, has bought the interests of W. J. Johnston in the Cook-Johnston Auto Co. The firm will be styled Cook Automobile Co.

NEW GARAGES

Cromb & Merril.....Wa-Keeney, Kan.
Maupin & Aksmit.....Lucas, Kan.
D. B. Teall.....El Dorado
L. T. Seamland.....Holland, Kan.
The Phillips Garage Co.....Gridley, Kan.
Geo. S. Scantlin .....Pratt, Kan.
Ed Hyatt .....Conway Springs, Kan.
Thos. Menees.....Clinton, Mo.
Maughs & Conner.....Fulton, Mo.
N. Ford & Son.....La Belle, Mo.
E. M. Blue .....Cherokee, Okla.
Tri State Garage Co. .....Weleetka, Okla.
Tom Cooper .....Ardmore, Okla.
Liberty Garage Co. .....Oklahoma City
Frank Clar .....Perlman, Okla.
Hoeffs & Humphries.....Pecos, Tex.

MIDDLEWEST

Langlade Motor Co., Antigo, Wis., has been sold to Othersall & Sorenson and will be consolidated with the Langlade Garage.

J. H. Ortscheid & Co., Cuba City, Wis., has been organized by J. H. Ortscheid, Robert H. Osborne and Joseph J. Coulthard, to take over the business of the Cuba City Garage & Vulcanizing Works.

A. C. Russell and Henry Kohnke, Augusta, Wis., have formed a partnership under the style Overland Automobile Agency, to deal in Overland and Willys-Knight cars. For the present a salesroom and service station will be operated in the Artis Garage, Augusta.

John J. Clements, Longview, Ill., has purchased the garage of C. A. Hand. Clements was formerly proprietor of a garage at Broadlands.

Lee Tire & Supply Co., Grand Rapids, has moved to larger quarters at 30 Ionia Avenue, S. W.

J. J. O'Donnell and V. H. Smith, Grand Rapids, have bought the Riekse Auto Co. from G. C. Riekse, and will sell the Elcar.

L. A. Walker, Heyworth, Ill., will open a motor car and farm tractor sales agency and garage at Libertyville, Ill. He will be Ford distributer in Lake County.

NEW GARAGES

Standard Garage.....320 Erie Street, Toledo
Peter H. Burbach.....West Allis, Wis.
Stratford Automobile Co.....Stratford, Wis.
Cobb Automobile Co (addition)..Cobb, Wis.
Henry W. Meisner .....Manitowoc, Wis.
E. V. Kirby .....Rantoul, Ill.
J. J. Clements .....Longview, Ill
Peter Hendricks.....Paxton, Ill.
Tacoma Garage Co. .....Findlay, Ohio
Sandusky Buick Co. .....Sandusky

NORTHWEST

City Garage, Gilbert, Minn., has been sold to F. J. Heitkemper, Phillips, Wis.

L. E. McGrew, Darwin, Minn., has bought the supply stock of W. R. Berens, Litchfield.

F. Lantz, Swanville, Minn., has leased the A. Mielke Garage.

Alfred Salmond, Sauk Center, Minn., has bought the garage of Salmond & O'Gara.

Heinck Auto Co., Winthrop, Minn., has bought the Norman Garage from the Wild Rose Realty Co.

Andrew Stievers, Wabash, Minn., has bought a half interest in the Frank Ebner garage.

Fred Bishalle, Tyler, Minn., has bought the South Side Garage from Ed. Mitchell.

Carl Hoerr, Le Sueur, Minn., has bought the interest of C. A. Nelson, his partner, in the Le Sueuer Garage.

Herman Boeck, Westbrook, Minn., has bought the Grant Ross Garage.

Oscar and Elmer Hillestad, Nassau, Minn., has bought the Otto Froemming Garage.

L. L. Wolfer, Jamestown, N. D., has bought the Motor Inn from L. L. Wolfer.

Sheldon Garage, Sheldon, N. D., has been sold to Earl M. Johnson, Gibbon, Minn.

J. W. Lyons, Grand Forks, N. D., has bought the interest of L. A. Warnken in the Lyons Auto Co.

Fairmount Motor Co., Fairmount, N. D., has leased the Fairmount Garage.

Mowbray Garage, Wales, N. D., has been sold to Otto Platz, Calvin, N. D.

Charles Royer, Chamberlain, S. D., has bought the Gilbert interest in the Smith & Gilbert Garage.

Oscar McDonald, Alder, Mont., has bought the Steve McDonald interest in the Alder garage.

Missoula Motor Co., Missoula, Mont., L. H. Barton manager, has taken over the Studebaker agency.

G. E. Miller and Wright Harvey, Musselshell, Mont., have bought the H. E. Martin Garage.

Guy Romine, Chadron, Neb., has bought the garage of Frank Plummer, which will now be styled City Garage.

B. L. Mills, Thedford, Neb., has bought the garage of S. C. Hyndshaw.

H. W. Buller, Fremont, Neb., has bought the repairshop of E. L. Whitcomb.

C. L. Columbia, Guide Rock, Neb., has bought the repairshop of Konzack Bros.

Theodore Burdoff, Papillion, Neb., has opened a repairshop.

Alvin Haggstrom, St. Paul, Neb., has bought the Corner Garage.

R. T. Duman, Hartington, Neb., has bought the Elite Garage.

M. Hutchins, Sunol, Neb., has sold his garage.

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U. S. Rubber Co., Omaha, has moved its office to a new building at Ninth and Farnam streets.

Adair-Lee Rubber Co., Omaha, has opened a tire station on Auto Row. A complete vulcanizing plant is being installed.

Carl Holcomb, Broken Bow, Neb., has bought a half interest in the Broken Bow Garage.

C. B. Mitchell and Joseph Barada, Auburn, Neb., have bought the Dustin garage.

Thomas Reed, Holbrook, Neb., has bought the West garage from H. G. Miller.

A. T. Dunman, Hartington, Neb., has bought the Elite Garage.

W. E. Wilson, Maxwell, Neb., has bought the interest of his partner, Chester Cohn, in the Cohn & Wilson Garage.

J. W. McHattan, Chappell, Neb., has assumed the managership of the Pioneer Garage.

W. F. Van Pelt, Marion, Neb., has bought the interest of John Newberry in the Service Garage.

Schiller and Elsman, Kalona, Iowa, have rented their garage to J. B. Yoder.

Albert McNabb, Carroll, Iowa, has remodeled his garage.

Kohlhass Bros., Algona, Iowa, has purchased the garage department of Willhite Brothers and will have the Buick agency.

William Gulick, Sloan, Iowa, has sold his garage to F. A. Woods and Fred McMindes.

Smith Motor Co., Newton, Iowa, has purchased the Colfax Auto Co. and will operate it as a branch.

Johnson Bros., Grand Junction, Iowa, have bought the D. Sullivan Garage at Mt. Ayr, Iowa.

New Garages

C. P. Waterous .....Breckenridge, Minn.
Frank Grouws (addition)...Elizabeth, Minn.
B. L. Lynch.....Minot, N. D.
Motor Service Co.....Lidgerwood, N. D.
Oukrop & Funk.....Dickinson, N. D.
Hicks & Helm.....Java, S. D.
Harms-Nielson Motor Co., Sioux Falls, S. D.
L. J. Case.....Langford, S. D.
Kindwell Garage.....Storm Lake, Iowa.
Estes & Co. .....Leon, Iowa
Brader Auto Co.....Storm Lake, Iowa
Farmers' Garage Co. .....Fremont, Neb.
M. A. Peatrosky .....West Point, Neb.

MOUNTAIN.

Geo. McClure has bought the Paxton Garage, Center, Colo.

H. M. Graves has opened an accessory and tire shop at Wakenburg, Colo.

The King Motor Co., Englewood, Colo., has bought the Ford agency and garage.

Lewis Tire Co., Denver, has moved to larger quarters at 1535 Broadway.

The Englewood Garage, Englewood, Colo., has been bought by O. I. Cole.

Moore-Hardy Motor Co., Denver, has moved to larger quarters at 1718 Broadway.

Jackson Motors Co., Denver, has opened a Jackson and Regal agency at 1512 Broadway.

New Garages

Eagle Garage .....Denver
Progressive Garage (addition.)
Del Norte, Colo.
Monte Vista Motor Co. (addition.)
Monte Vista, Colo.
Seitters Garage (addition)...Alamosa, Colo.
Oldam Bros. Garage.....La Juanita, Colo.
Marshall Bros.....Las Animas, Colo.

The Wyckoff Motor Sales Co., Pittsburgh, for many years distributer of the Chalmers and McFarlane in western Pennsylvania and West Virginia, has discontinued the Chalmers line. The company will take on a line of trucks.

New Garages

East 43d Street Garage
231 East 43rd Street, New York.

PACIFIC COAST

P. M. Quien has moved his supply store to 211 Third Street, Napa, Cal.

D. R. Bolton has moved the Steam Vulcanizing Works to 55 North Main Street, Napa, Cal.

Sparks & Murphy, Petaluma, Cal., have added a battery department.

Violetti & Vestal will succeed Cordingley & Violetti Bros. as agents for the Hudson and Dodge Brothers car and the Republic truck.

R. A. Schieffer, Ford agent at Healdsburg, Cal., has erected a new building, and will use the adjoining lot to accommodate automobile camping parties.

I. E. Ray has purchased the Central Garage, Healdsburg, Cal., from Otto Hildehand.

Roy O. Hurst has opened the Battery Shop, Healdsburg, Cal., as a branch of Santa Rosa Battery Shop.

H. B. Cotte has installed a complete vulcanizing plant in the Healdsburg Garage, Healdsburg, Cal.

J. G. Barrett & H. H. Cook have opened the Rose City Auto Repairshop at 9 Main Street, Santa Rosa, Cal., and will specialize on light cars.

Louis Hansen has opened the Auto Laundry at Third Street, Santa Rosa, Cal.

Girrens Bros. have remodeled their garage on Main Street, Santa Rosa, Cal.

Houts-Moulton Overland Co., Santa Rosa, Cal., has opened salesrooms and will handle the Franklin and Overland.

W. E. Dorman has become sole owner of the Santa Rosa Garage, Santa Rosa, Cal.

The Battery Shop, Santa Rosa, Cal., has moved to larger quarters at 414 Mendocino Avenue, Santa Rosa, Cal.

F. W. Craver is improving his garage at Santa Rosa, Cal.

Rose's Garage, Niles, Cal., has installed a vulcanizing plant.

A. Lydiksen has opened the Steam Vulcanizing Works, Livermore, Cal.

C. M. Steves, Portland, has opened a Scripps-Booth agency. Associated with him are Cliff Durant and Norman de Vaux.

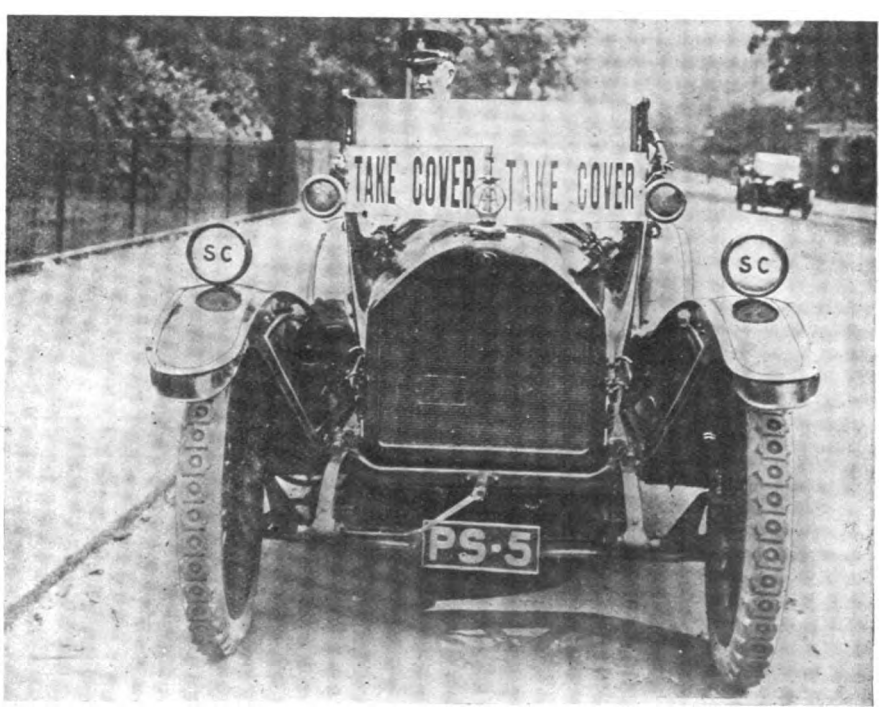
G. G. Gerber, Portland, has opened a parts shop at 53 Ninth Street.

R. W. Lee and F. C. Laster, Portland, have opened an electrical and service shop at Sixth and Burnside Streets.

New Garages

Smith & Fellers .....Sebastopol, Cal.
Garry's Garage.....Sonoma, Cal.
Mallory Bros. .....Santa Rosa, Cal.
Service Garage .....Napa, Cal.
Owl Garage .....Seattle
McEldowney's Garage (addition)....Tacoma
Warren Bros (addition)..Wenatchee, Wash.
M. Grinstead .....Bend, Ore.
E. F. Hug .....Elgin, Ore.
White Motor Co.....Seattle
Twin City Auto Co.....Morton, Wash.
O. P. Halligan.....Tacoma
Mt. Vernon Auto Co.....Mt. Vernon, Wash.
H. M. Backus.....Seattle
E. F. Hug.....Elgin, Ore.
E. B. Clark.....Hood River, Ore.
Antioch Garage & Machine Shop
Antioch, Cal.
W. W. Garage.....Pittsburgh, Cal.

Overland Car Gives Warning of London Air Raids



HERE is an Overland car that has played an important part in London air raids. It is one of the automobiles used by the constabulary of England's capital to warn the populace of impending danger from Teuton Zeps or aeroplanes. Each car is equipped with big signs, which are illuminated by the car's side lights so that they can be easily seen by the public.

The signs are reversible and when danger has passed the "Take Cover" signs on the front and rear are utrned back and "All Clear" is shown.

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Accessories

U. S. E. Combination Shock Eliminator and Buffer

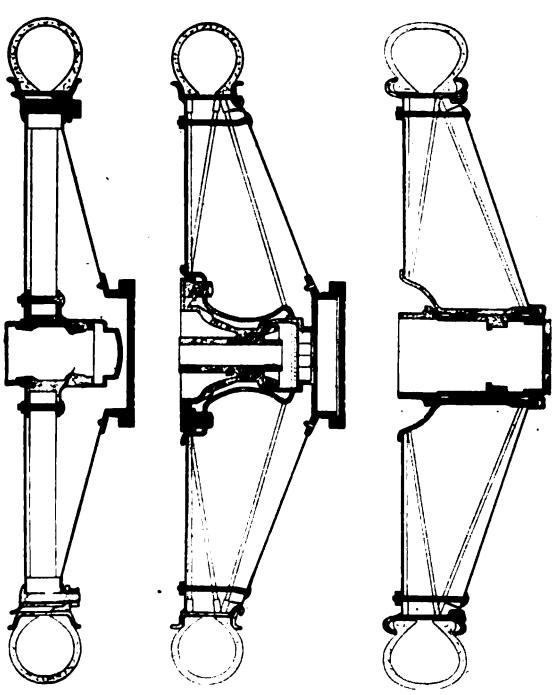
The impact of collision is absorbed through the medium of the shock eliminator springs in addition to the cushioning action of the spring buffer, by means of



a connection with the top of the load spring through a connecting rod coupled to the bumper arms.—Universal Shock Eliminator, Inc., 6 and 8 W. 62nd St., New York.

Schutte Wheel Discs

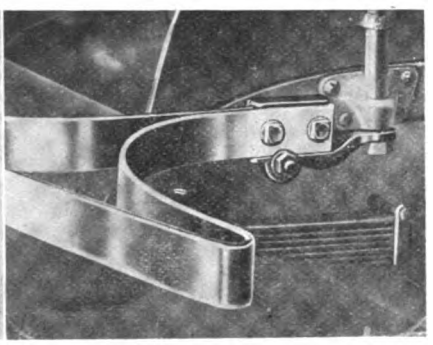
By the use of these discs a wood or wire wheel is converted into a steel disc wheel. They are made in three types. No. 1 is designed for use on any style



of wood wheel with either demountable or clincher rim. The two halves of the disc are separate, the outer coming in contact with the wheel only at the felloe and held in place by the lug plates. It does not interfere with the removal of the rim or of the wheel from the axle. The inner half is held in place by the wheel hub bolts. A small sliding door gives access to the tire air valve. Type No. 2 is for use on any wire wheel. The inner half is in two sections that it may fit under the flange of the wheel at the hub, and the outer half comes in contact with the wheel at the felloe only. The two halves are held together by six bolts extending through the wheel. Type No. 3 is for wire wheels with large hub caps and makes use of the locking ring to hold the disc in place. Otherwise this is similar to type 2. Unless otherwise specified the whole disc is made of 22 gauge steel with aluminum base and hub cap, but a heavier gauge is furnished if desired.—Charles Schutte Body Co., Lancaster, Pa.

U. S. E. Spring Bumper Bracket

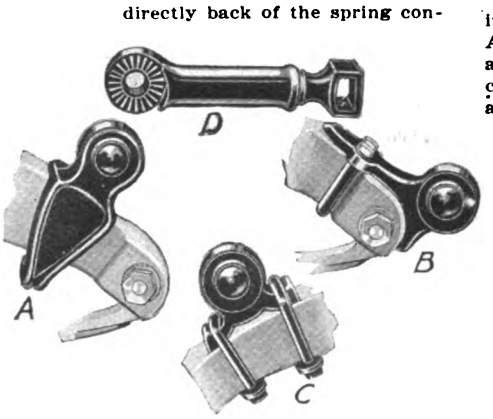
This bracket is adapted to Cadillac cars. It uses the fender prop iron as a positive means of securing a drop forged steel bracket to the chassis frame, together with a U-bolt



extending through the frame, thus minimizing any tendency to work loose and become noisy. The inner ring of spring steel supports the front bar at its weakest point and offers additional resistance to collision. Price, $15.—Universal Shock Eliminator, Inc., 6 and 8 W. 62nd St., New York.

Halladay Standardized Bumper Unit

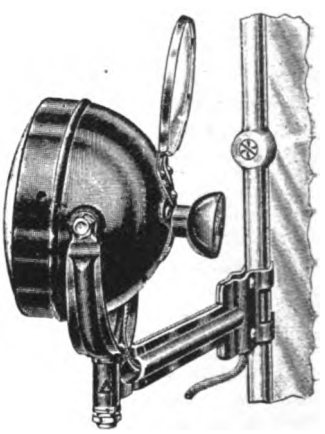
This consists of four fittings, three frame clamps and a bar support. One of these clamps, fitting "A," is designed for use on any frame the outside of which is exposed for a distance of four inches or more back of the spring connections, regardless of splash aprons on the outside. Fitting "B" is an under-thrust support and may be used on any frame on which there is room for a single clip, directly back of the spring con-



nections. The third fitting, "C," is primarily designed as a rear fitting on ¾ elliptic springs and rear frame extensions. The bar support, "D," fits all these frame connections, and, being pivoted, may be adjusted to any frame angle. This support fitting is furnished for cars carrying one or two tires.—L. P. Halladay Co., Streator, Ill.

Delta Thousand-Foot Spotlight

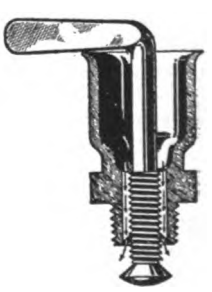
This windshield spotlight has a focusing arrangement by means of which the light may be instantly spread from a small spot to a width of sixty feet. A diffused light may be thrown straight up, down, to the sides or the rear while driving. The lamp used is a 21 candle power nitrogen bulb. The device comprises a headlight, battery case, cable, switch and universal bracket complete ready for attachment to any car. It can be



detached for use as a trouble lamp. It has a 3¼ in. lens and silvered parabolic reflector. It runs on two number 6 dry batteries. Price, $6.50. With mirror attachment, $7.00.—Delta Electric Co., Marion, Ind.

Kant-Klog Primer

Consists of a screw terminating in a mushroom-shaped head. A few turns draws the head to a close seat which prevents the collection of carbon. There is ample clearance for a free flow



of gasoline when priming. Variations of the standard are designed for different types of motors.—Taylor Machine Co., Cleveland, Ohio.

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How Much Does It Cost To Drive-Away Cars?

By S. T. Williams

THE constantly increasing number of drive-aways are a result of war conditions, and because of freight car congestion are bound to increase in the future.

Manufacturers, dealers and owners are all coming to realize that the use of freight cars to carry a product that is in itself a prime mover is almost non-patriotic.

The Government, even, is delivering its trucks in this manner, and is setting an example that the manufacturer and dealer should be willing to follow.

There are many angles to the drive-away situation, and the following are a few of the variables the dealers must consider in preparing to bring his cars home in this manner.

Distance Most Important

The first and greatest of these is the distance. The next is the cost, as compared to the freight charges and the time by freight, if freight shipments were possible. Road conditions also must be considered.

The consensus of opinion on the part of manufacturers and dealers that have conducted drive-aways is that 300 miles is a practical limit to which cars may be satisfactorily driven. Drive-aways have covered 1300 miles and more, and there is in fact no limit except the ocean itself to which cars can be so delivered.

But above 300 miles the cost of the drive-away rapidly increases over the corresponding freight cost, and in many cases becomes over 100 per cent greater. Besides, the wear on the tires, depreciation of finish, etc., all tend to decrease the sales value of the car after the 300-mile mark is passed.

Herewith is a table showing the actual costs of a series of drive-aways that have been made in the past season, as compared with the corresponding cost and time by freight.

Many factories provide drive away crews for the purpose of delivering cars to dealers, but in general the dealer himself will have to provide such a crew. This is usually not difficult.

Tremain & Rankin Auto Co., Oakland distributer, Fort Dodge, Iowa, use their own men from the shop and part of their sales force. During the summer a number of high school boys were picked up and were willing to drive the cars back for little more than expenses. This firm has also found that the most successful method was to take the prospective owner right to the factory and permit him to drive his own car home. The owner has an outing and any possible objection to a car delivered in this manner is absolutely removed.

The Frint Motor Car Co., Oldsmobile distributer, Milwaukee, pays the expenses of dealers throughout the state to drive their cars home. The District Oakland Co., Washington, D. C., have found that the most satisfactory method was to procure first-class drivers from the local Chauffeurs' Club, and another Oakland distributer counts on picking up enough drivers in the factory.

Standard Rules for Drivers

Practically all dealers conducting drive-aways issue the same instructions to drivers. The driver in charge of the party is placed at the head of the procession and a mechanic is placed at the rear. Those between are instructed to keep in sight of the car ahead and under no conditions to race. Upon the slightest indication of trouble the disabled car should drop out of line and if necessary wait for the mechanic at the rear, the others continuing on their way.

On the first day's run the cars should not exceed 15 to 20 miles per this may be stepped up to from 20 to hour at any time; on the second day 25 miles an hour, as the upper limit, and after that speeds from 30 to 35 miles per hour are permissible.

In general, an average of 20 miles per hour, or 120 miles per day is possible, but this, of course, depends largely upon road conditions.

Several large dealers state that not more than five cars should be driven away at any one time, as numbers

(*Continued on page* 63)

Typical Drive-away Routes

From LANSING, MICH. INTERMEDIATE POINTS
Kalamazoo
Paw Paw, Mich.
Benton Harbor, Mich.
St. Joseph, Mich.
Gary, Ind.
Chicago
Waukegan, Ill.
Racine
Kenosha
To MILWAUKEE

From DETROIT INTERMEDIATE POINTS
Pontiac
Through Illinois
Clinton, Ia.
Cedar Rapids, Ia.
Waterloo, Ia.
To FORT DODGE, IA.

From PONTIAC INTERMEDIATE POINTS
Detroit
Toledo
Cleveland
Bever Falls, Pa.
Pittsburgh
Greensburg, Pa.
Everitt, Pa.
Bedford, Pa.
McConnellsburg, Pa.
Chambersburg, Pa.
Hagerstown, Md.
Frederick, Md.
To WASHINGTON

From LANSING INTERMEDIATE POINTS
Detroit
Buffalo (By boat)
To BOSTON

From DETROIT INTERMEDIATE POINTS
Ann Arbor, Mich.
Clinton, Mich.
South Bend, Ind. (Lincoln Highway)
Nevada, Ia. (Jefferson Highway)
To DES MOINES

Cost of Freight Shipments and Drive-aways Compared

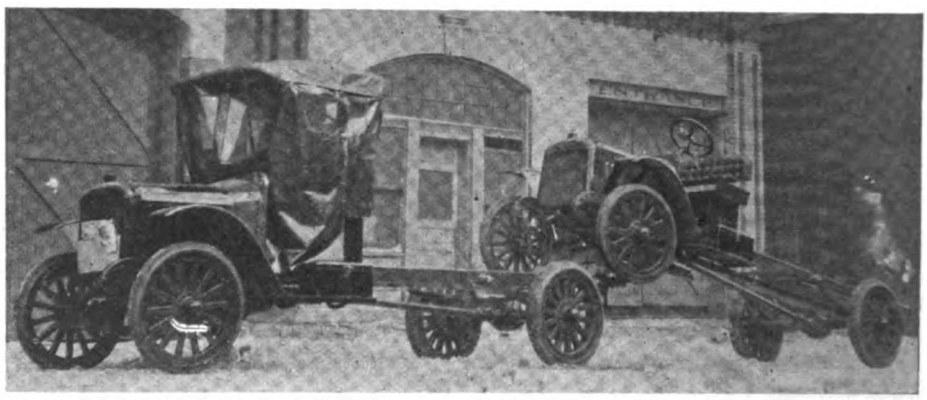
Car	From	To	Miles	Time	Cost per Car	Cost by Freight	Time by Freight
Oakland	Pontiac	Washington, D. C.	600	5 days	$70	$35	
Oakland	Pontiac	Fort Dodge, Ia.	450	3 days	Cheaper than by fr'ght		
Paige	Detroit	Indianapolis, Ind.	380	19 hrs.	$32	$25.50	5 days
Oakland	Pontiac	Des Moines, Ia.	450		$2 car less than freight		
Briscoe	Jackson	Chicago, Ill.	235	12 hrs.	$14.65	$15.06	4-5 d.
Briscoe	Jackson	Springfield, Ohio	250	12 hrs.	16.90	16.80	3-7 "
Briscoe	Jackson	Pittsburgh, Pa.	400	2 days	24.00	17.00	7 d. up
Briscoe	Jackson	St. Augustine, Fla.	1300	6 days	73.75	45.00	2 w. up

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Making One Truck Carry Another

How One Dealer Solved the Drive-Away Problem

By B. S. Brown



How Hill made one truck carry half of another, the two rear wheels of the second acting like a trailer. Have you read this good story?

KANSAS CITY, Feb. 1—A. H. Hill, Republic distributer in southwestern Oklahoma, needed, in Oklahoma, some trucks and trailers that were in Kansas City.

He came to Kansas City and got them. And here is the way he cleverly and effectively overcame the various obstacles that successively stood in the way.

Hill needed eight trucks, three for immediate delivery to customers, five for stock. He had to have three 2-ton, two 1½-ton, two 1-ton and a ¾-ton special, also he had to have two highway trailers.

The first problem was as to drivers. For eight trucks eight drivers would be needed, whose passage must be paid, one method or another, on an idle trip between Kansas City and Chickasha.

There was also the problem of getting these trucks through in uncertain weather. This was in the midst of the period of below-zero temperatures, the roads were blocked with snow drifts. If the cold continued, the roads would be difficult enough, both from the standpoint of bucking the drifts and from the standpoint of holding traction on the snow. Mr. Hill did not have time to gather a load of freight for these trucks to Oklahoma—and he thought, any way, that there might be a better recourse.

Careful Investigation First

He had had a great deal of experience in drive-outs of passenger cars, and in delivery of trucks in his own community. With his own experience and information he came to Kansas City and conferred with H. M. Genung, secretary of the H. A. Dougherty Motor Co., Republic distributer for the territory, and Sam Simon, manager of the company's body works here. Simon "turned him loose" in the plant, and here is what he did.

First, he assigned the trucks their places in the caravan. There was to be a minimum of wasted energy and carrying capacity, a minimum of drivers, a maximum of traction for the driving wheels of the trucks that were doing the work. He assigned one of the ton trucks to one of the 2-ton trucks and the ¾-ton special to another of the larger vehicles. The third 2-ton truck was to carry the two highway trailers. One of the ton trucks was to be used as the "supply wagon" for tools and some small accessories.

The loading of the smaller trucks on the large ones was simple enough. Oak beams 2 x 8, extending beyond the rear of the carrier, set edgewise on the frame of a large truck, securely fastened to the frame with U bolts, supported the smaller truck, the frame of which was also bolted to the beam. Cross wires to the lower truck braced the load from racking. The cab of the load set snugly against the cab of the carrier.

Another Knot Untied

The 1½-ton trucks presented a different problem. One of these couldn't carry the other—so one was made to carry half of the other! The front of the 1½-ton truck was mounted on the rear axle of the carrier, the rear wheels of the load trailing. This provided a sufficient load for the carrier to provide traction, the "passenger" carrying part of its load itself.

The mounting of the front end of one truck on the rear of another was not, however, as simple as it might sound. Provision had to be made for trailing, turning corners, careening, as well as for avoiding incidental marring or damage to either. Under Hill's direction the following arrangement was effected:

A 4 x 4 oak piece was prepared to lie on the frame of the carrier truck, Eight or 10 in. of each end of this piece was rounded to roll on the frame. U bolts, the loop engaging the rounded ends, secured this oak piece to the frame, only one hole having to be cut in each side for the insertion of the arms of the bolt, the piece being so located that frame holes already there could be utilized. Another heavy piece of oak, shorter, was slightly curved lengthwise on one side, the ends being perhaps ½ in. less in diameter than the center. A hole was bored in the side of this piece that had been rounded—bored in the side that was to rest on the "axle" already described as bolted to the frame of the carrier truck.

There was a corresponding hole in the "axle." A king bolt in these holes provided the physical connection. Both pieces of oak were re-enforced, around the holes, with bolts to prevent splitting. The front axle of the rear truck was securely fastened to the bolster.

The wooden "axle" rolled as expected when the comparative elevations of the two trucks varied. The bolster turned on the axle when the direction of travel was changed. And careening was taken care of by the curve provided on the side of the bolster resting on the axle.

Hill had brought two men with him from Oklahoma to help with the driving, and secured the others in Kansas City. One of these Oklahomans was B. H. Houts, special repair service man for Hill's distributing agency at Chickasha. The other was F. R. Reinhart, who, with a Republic 1-ton truck, had made a Liberty bond tour of 750 miles in 5 days, keeping pace with passenger cars, making a record of not a single item of trouble on his truck.

Temperature Below Zero

The drive-out left the Republic branch at Seventeenth and McGee Streets, Kansas City, at 3 o'clock Tuesday afternoon, Jan. 15, with the temperature a little above zero, snow drifts on all roads. They followed the Santa Fe Trail, over which between Wichita and Chickasha Mr. Hill had traveled many times. They ran into snow drifts in many places, though often finding the worst of the drifts already broken by others.

There was practically no "real" trouble on the entire trip. There was no trouble out of which Hill and his assistants did not extricate themselves without calling for outside aid. One of the most important accessories taken along was a towline, which once or twice was snapped on to the 2-ton that carried the trailers, and helped the 1½-ton with its trailing sister up a hill. Each working truck had heavy chains on wheels.

The distance between Kansas City and Chickasha is 500 miles.

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First Class AA Military Trucks Nearly Ready

Will Be Used in Many Government Departments and For Postal Work as Well

(Look at the pictures on the following pages)

THE first four experimental models of the Class AA ¾-ton trucks are practically complete. Designed under the supervision of the Quartermaster's Corps, they are destined to play perhaps the greatest part in all the work of our standardized war vehicles for the reason that they will be purchased in great numbers, and will probably be used not only by the Quartermaster Corps but also for the Navy Department, Marine, Signal and Medical Corps, and the Post Office Department.

All these departments were considered in the design of the vehicle, which in so far as possible include provisions for the particular class of work which must be performed by each of the departments.

Although the Quartermaster Corps will use a large number of the trucks as soon as they have passed through the preliminary road test, it is expected that the Medical Corps will require at least 3500 for immediate service as ambulances. It is likely several thousand will be purchased during this year and put into service over the 4000 miles of new parcel-post routes just laid out from Maine to Louisiana by the Post Office Department.

The fact that the chassis will serve as an ambulance perhaps affected its design to a greater extent than any other department. It was because of the fact that they will be used as ambulances that the vehicle was provided with a torque arm and radius rods notwithstanding the fact that the heavier Class A and Class B trucks both employ Hotchkiss final drive in which the torque and propulsion are taken through the rear springs.

Easy Riding a Prime Requisite

For ambulance work easy riding qualities are one of the prime requisites, and it was considered advisable in this service to make the springs carry only the body and the live load instead of both the driving and propulsive strains. The use of the radius rods and torque arm makes for a slightly heavier and more costly construction, but when the lives of our men are in the balance these two elements are secondary in consideration. These details have not been finally settled.

As previously told, the trucks were assembled by the Reo Motor Car Co., Lansing; Federal Motor Truck Co., Detroit; Maxwell Motor Car Co., Detroit, and the Willys-Overland Co., Toledo. The fifth truck, which will be assembled later in Washington, as a check against the design, has not yet been started.

The progress of the work at the four plants was about the same. The vehicles were originally scheduled to be completed Jan. 15, but this was not possible because of unavoidable delays.

The Federal and Reo companies received their orders from the Government to begin the construction of their trucks Dec. 19, 1917, while the Willys-Overland Co. received its order on Dec. 24. The Maxwell company was the last to get its word to go ahead, receiving its order on Jan. 7.

The Federal company received the engine, springs, frame and clutch on Jan. 2, and immediately began to assemble the various component parts. With the exception of the front and rear axles its job was virtually completed on Jan. 8. The Reo company went to work on much the same schedule and completed its truck as far as possible at the same time.

The Willys-Overland company received its engine from the Northway Motor Corp. on Jan. 3, together with the frame parts from the Reo company and the clutch assembly from the Detroit Gear & Machine Co. The steering assembly arrived on the day following and the Willard storage battery and muffler on Jan. 8. The wood wheels, transmission and radiator, the latter from the Federal Motor Truck Co., were received on Jan. 10. The starting motor, fenders, hood, tool box and universal joints arrived on Jan. 11, and the dash, instrument board and fittings on Jan. 15. Actual assembly was begun on Jan. 16, and was finished as far as possible on Jan. 24, with the exception of the front and rear axles.

The Maxwell company started the assembly of its job on Jan. 11, the date on which the frame arrived, and finished the vehicle on Jan. 24, with the exception of both sets of axles. The delay in the delivery of the axles was because they required much new die work.

All of the principal component parts entering into the construction of the vehicle were ordered from the parts makers by the Government.

The mechanical features of the truck have already been explained in detail in these columns. It will be noticed that the engine is provided with detachable cylinder heads and with the dual-ignition system consisting of both a magneto and generator as followed on both the previous Class A and Class B trucks. It differs from both of the latter in that it is equipped with an electric starter. It has, however, many of the characteristics of the Class A and B engines, including the hot-spot manifold and a similar mounting of the distributer, water pump and magneto on the left side of the engine looking toward the front and the governor and generator on the right side.

Another unusual feature of the engine is that the crankcase is so designed that cylinders of 3¾-in. bore by 5-in. stroke are interchangeable with the 4 by 5-in. cylinders now fitted. The purpose of this construction is to enable the Post Office Department to use a slightly smaller engine, as the 42 hp. of the 4 by 5 cylinders is considered too large for ordinary post office work. It may be said in this connection that the undefined rumor to the effect that the Post Office Department will not use any of the standardized war trucks certainly does not apply, at least to the Class AA job, since the post office officials and engineers were considered in its design and their recommendations incorporated into the construction laid out.

Aside from the large component parts which were shipped to each of the assemblies by the parts concerns, each assembler furnished a large number of small units such as the brake-rod assembly, clutch-pedal assembly, the fabric universal joint spiders, spring bolts and the like. The Willys-Overland company furnished 130 extra parts in all, including spring bolts, pads, clutch and brake pedal units, bumper, draw-bar, etc., exclusive of the wiring system. The Maxwell company supplied a large number of forgings and the spring hangers. Each assembler himself provided small brackets, the spark and control assemblies and a thousand and one small parts which go to make up the completed vehicle.

Will Drive Trucks Overland

According to the plans made known at this writing, it is intended to drive each of the trucks overland to Washington. The Reo job has a Quartermaster Corps body made by the Auto Body Co., Lansing, Mich., and the Federal job a body made by the C. R. Wilson Co., Detroit.

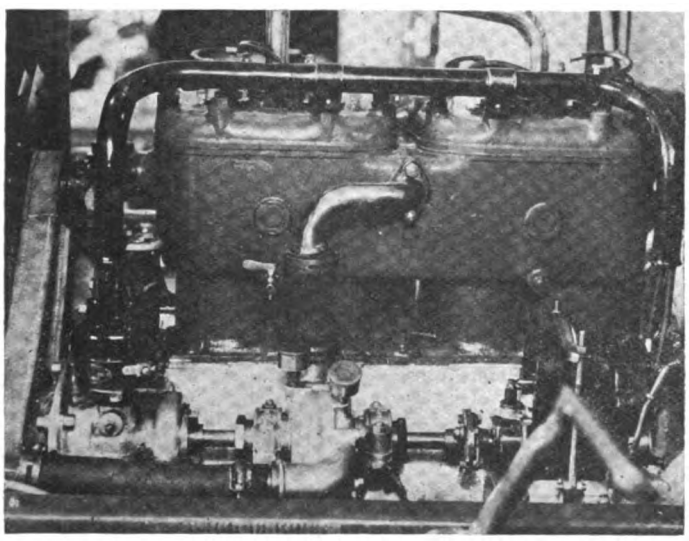
It is expected that as soon as the vehicles reach Washington and undergo satisfactory tests similar to those performed on the Class A and B trucks, they will be ordered in large quantities. It is expected that the Medical Corps and perhaps the Post Office Department will place the initial orders.

The AA truck can be made in great quantities, and as an indication of the production which can be had with these trucks, Walter E. Flanders, of the Maxwell company, volunteered the information that his company could build 100 of the trucks a day provided enough parts were made available.

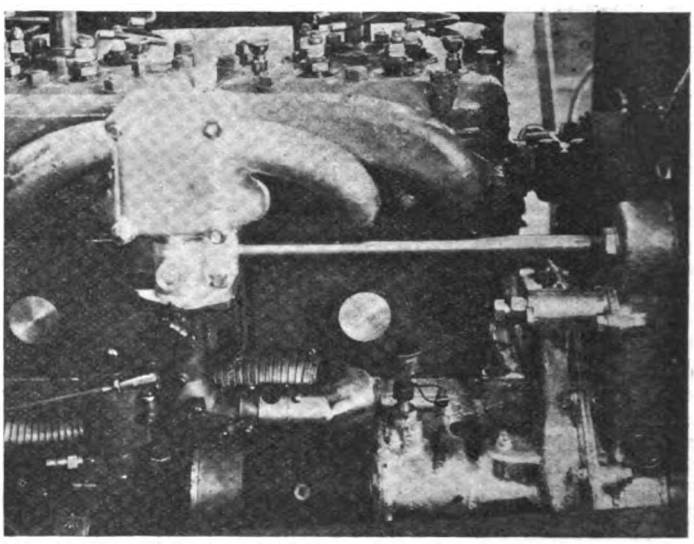
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First Views of the

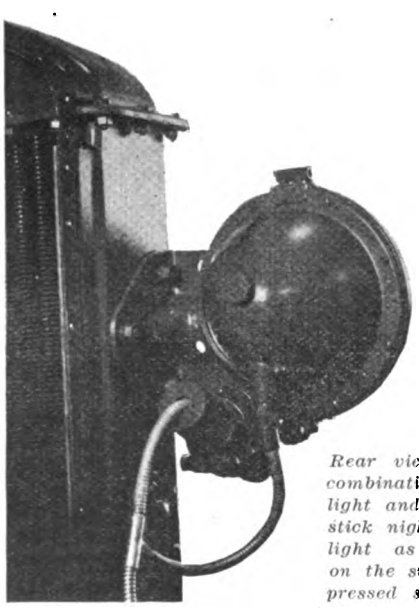
Class AA Standardized ¾-Ton War Trucks



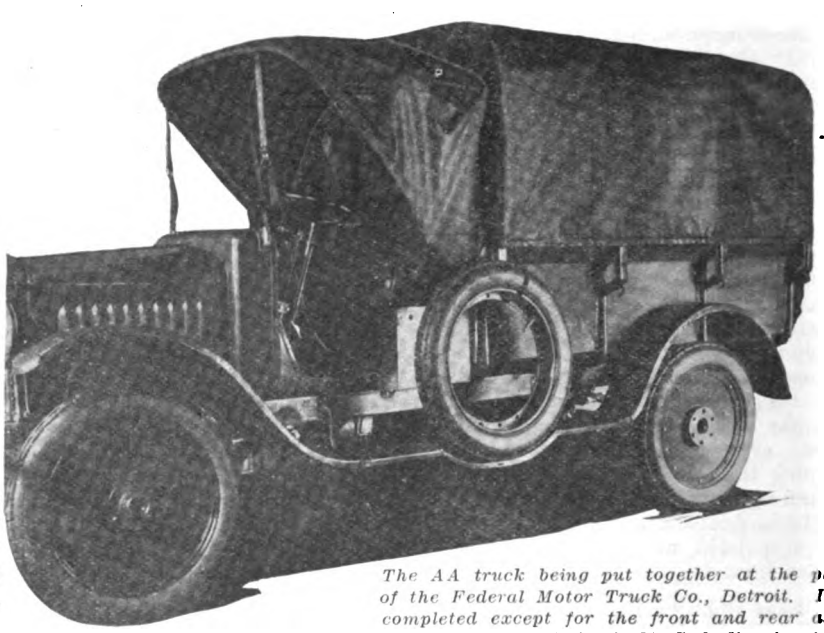
Right side of the engine showing the Remy distributor, the water pump and the Bosch magneto on the same longitudinal shaft. Note the two sets of spark plugs and the detachable heads on the cylinders



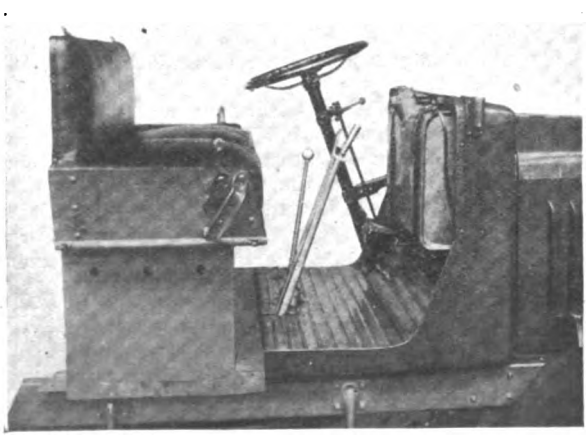
The left side of the engine showing the hot-spot manifold, the Stromberg carbureter and the hot-air pipe leading from the exhaust pipe under the fuel tank on the dash

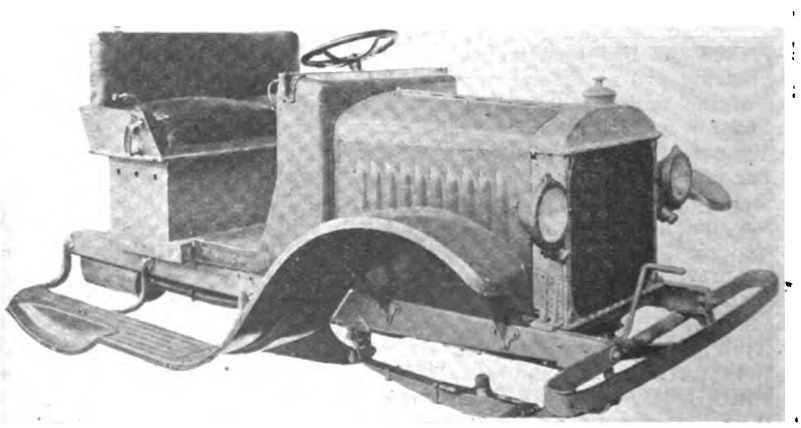


Rear view of the combination headlight and shaving-stick night driving light as mounted on the side of the pressed steel radiator



The AA truck being put together at the plant of the Federal Motor Truck Co., Detroit. It is completed except for the front and rear axles and shows one of the Q. M. C. bodies furnished by the C. R. Wilson Co., Detroit.

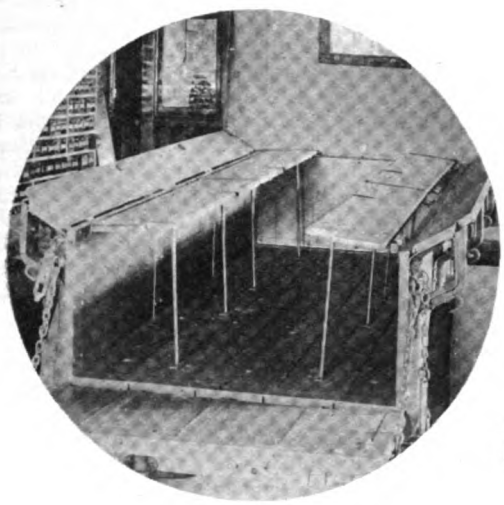


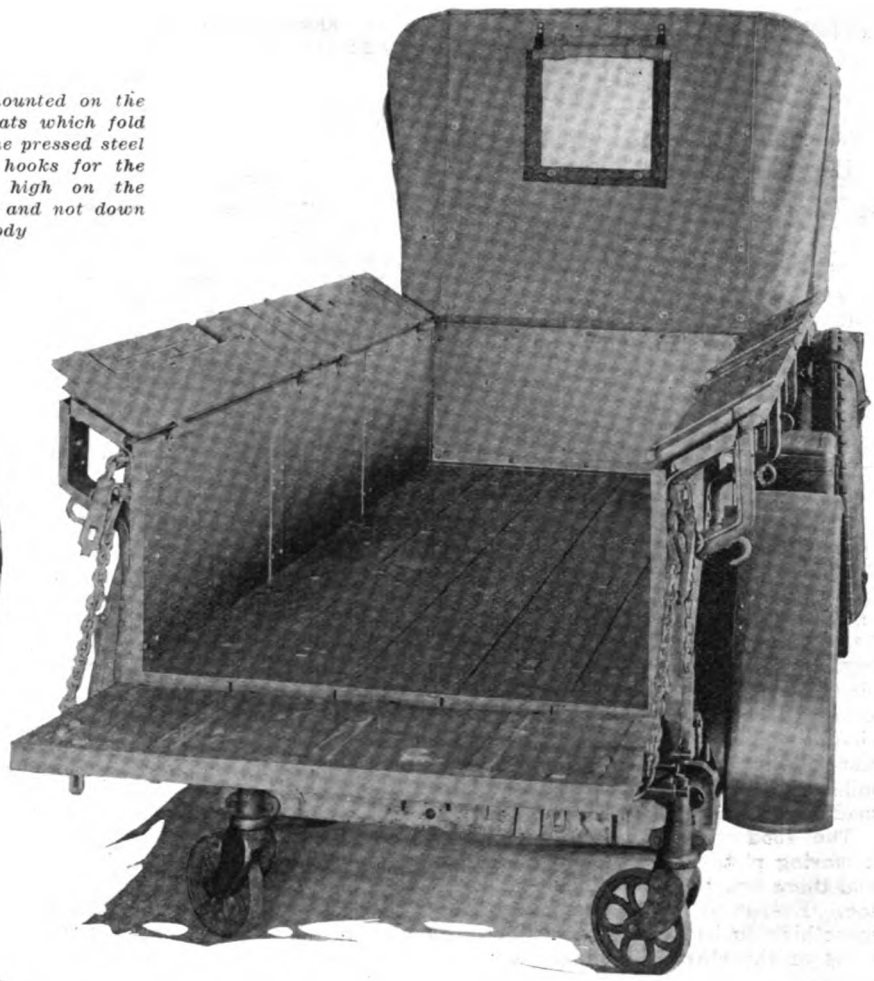


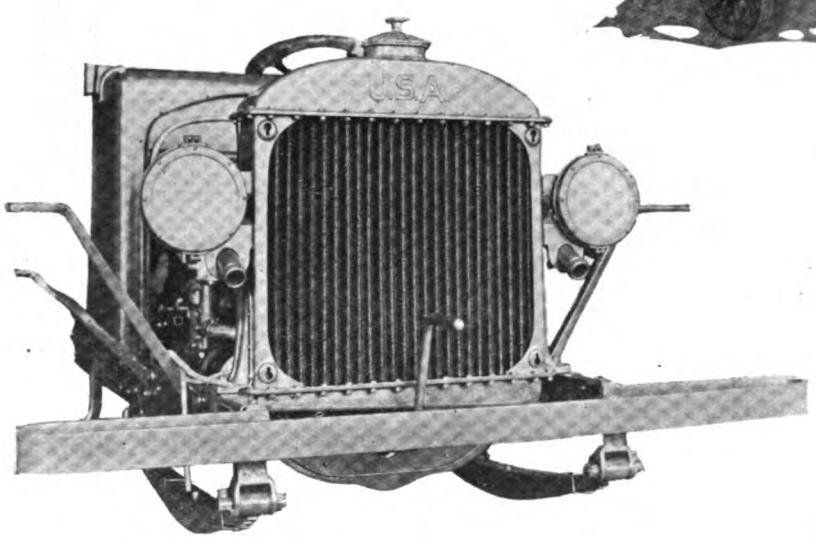
Two views of the Class AA chassis completed at the Maxwell plant, showing the well-upholstered seat, the arrangement of the control units and the substantial bumper with which the trucks are fitted

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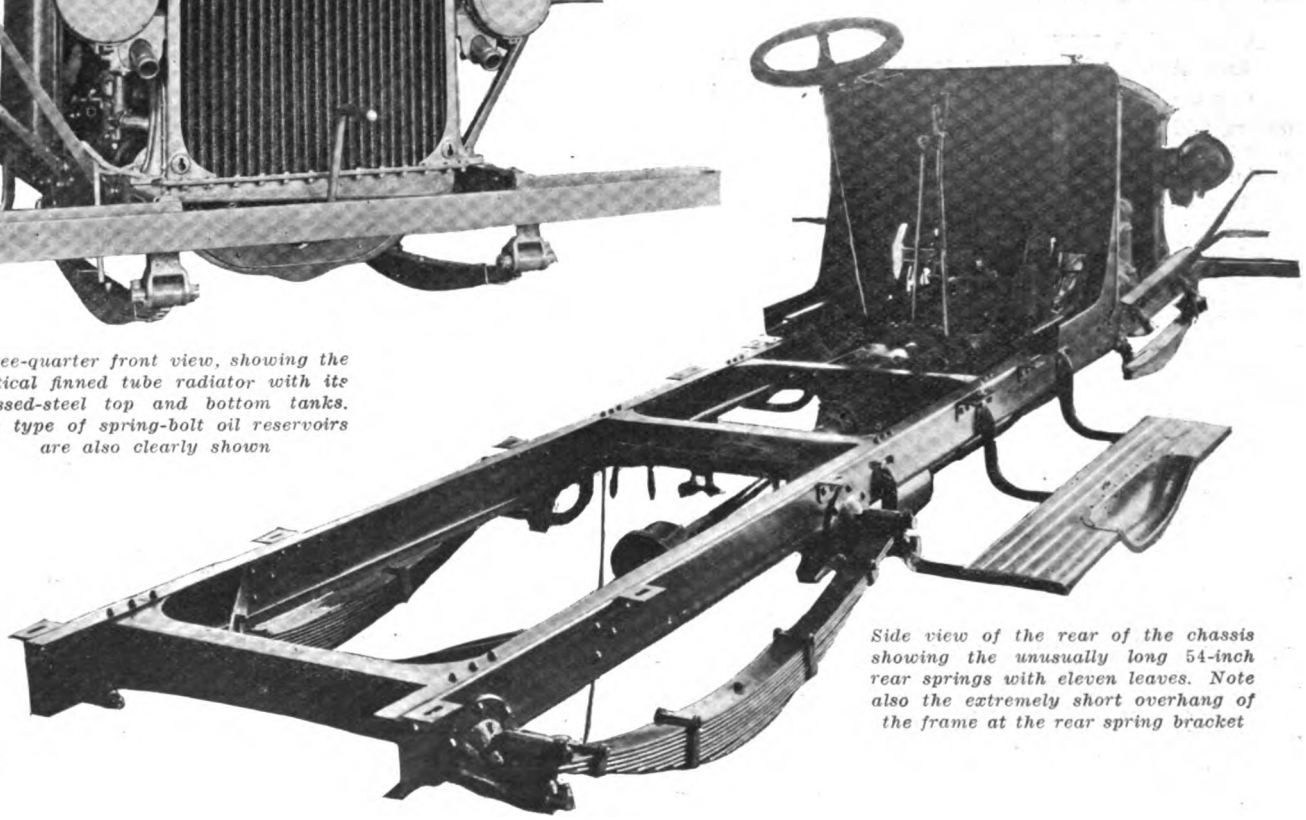
Rear view of the Q. M. C. body mounted on the Reo job and showing the hinged seats which fold back on the flareboards. Note also the pressed steel braces on the body sides and the hooks for the tarpaulin top. These are placed high on the pressed steel braces for convenience and not down near the bottom of the body







Three-quarter front view, showing the vertical finned tube radiator with its pressed-steel top and bottom tanks. The type of spring-bolt oil reservoirs are also clearly shown



Side view of the rear of the chassis showing the unusually long 54-inch rear springs with eleven leaves. Note also the extremely short overhang of the frame at the rear spring bracket

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New York and Chicago Eclipsed by Twin City

Overland Building Houses Show Bigger than Both National Events —Record Attendance

MINNEAPOLIS, Feb. 4—The Twin City show, which opened to-day, is a real automotive show, and is bigger than the New York and Chicago exhibitions put together. On the opening day the crowds were so enormous that the box office facilities broke down, and the association officers had to take admission fees at the gate, and pass the people in without tickets.

The show is held in the Overland Building and there are nearly three miles of aisles. The exhibits are varied, and include not only passenger cars, but trucks, tractors and accessories for all three. Farm lighting and farm power machinery, as well as household appliances are shown. There is also one airplane on exhibit, and a big industrial section, including Red Cross and food administration booths. It is nearly a quarter of a mile around the building and the crowds made traveling slow.

The food administration is running a moving picture show in the basement, and there is a full-size dance floor there, too. Every visitor to the show found something to be enthusiastic about, and most of them are enthusiastic about it all.

The Twin City show, which is held half-way between Minneapolis and St. Paul, has proven such a big success that it is probable that neither city will ever hold an exclusive show again.

Spokane Automobile Dealers' Banquet

TACOMA, Feb. 1—Upwards of 100 dealers and their department heads sat down to the banquet given in the Elizabethan room at the Davenport Hotel by the Spokane Automobile Chamber of Commerce.

It was also an open meeting and the committee in charge was known as the "Four Bs," consisting of D. F. Bacheller, of the W. C. Garbe Co.; W. H. Barnes, of the T. J. Young Co.; George Beverly, of the Rossi Auto Co., and A. W. Barber, of the Overland-Pacific Co.

The speakers of the evening were: Thaddeus S. Lane, who chose as his subject, "Better Relations Between the Banker and the Automobile Man"; B. M. Gainsford of Olympia, Assistant Secretary of State, gave the club considerable information on "The New Lens Law and How It Operates"; P. C. Gartley, of the Logan Automobile Co., "Advertising—the Dealer and the Public."

It was decided that the charter roll of the new association will be left open until after March 12, after which time the initiation fee will be $50 and admission to membership will be by vote of the body. It was also decided to extend an invitation to garage owners to join the association, and country dealers may be associate members by paying dues of $2 a month and no initiation fee.

Motor Truck Convoys Nearing Eastern Seaboard

WASHINGTON, D. C., Feb. 4—The five motor truck convoys en route to the eastern seaboard from Detroit are nearing their destination. The convoys have had to contend with the most severe winter storms in their journey, and in a number of instances were snowbound for two and three days at a time. The convoys are traveling one day apart.

Very Important

ST. LOUIS, Feb. 5.—Are motor cars essential?

St. Louis thinks they are. Because of a street-car strike, Special Deputy Robert E. Lee cancelled all fuel and light restrictions which have hampered the operation of garages and repair-shops and virtually crippled the transportation system of the city. With both the street cars and the motor cars out of business, business virtually suspended. To-day the temperature is four above zero and transportation throughout the city is entirely by motor car and motor truck. Stores and factories report two-thirds of their workers on hand, but without motor cars they probably would have remained closed.

Garabed to Be Tested by Eminent Scientists

WASHINGTON, D. C., Feb. 4—Garabed, the new free energy which has been discussed in Congress and supposed to have been invented by G. T. K. Giragossian, will be tested in Boston shortly by eminent scientists to be selected from the faculties of Harvard, Yale, Massachusetts Institute of Technology, and the Worcester Polytechnic Institute. It was learned here to-day that just before the resolution was passed authorizing the tests, the British Embassy promised the inventor that if the U. S. Government did not accept the invention Great Britain wanted the opportunity to do so.

Racine Plans Its Show

RACINE, WIS., Feb. 2—The Racine Automobile Dealers' Association, organized recently by dealers and garagemen of Racine, Wis., has overcome numerous obstacles standing in the way of its proposed first annual motor show and is planning to stage the exposition in the Public Market Building late this month. Originally it was intended to hold the show in the big Lakeside Auditorium. The proceeds will be divided between the two hospitals of Racine. The dealers will wire the market and make other permanent improvements at no cost to the city. The association has a membership of twenty-five and embraces practically every dealer in Racine.

Ford to Manufacture One Sub Chaser a Day

Will Turn Out Government Vessels Like Motor Cars—Production Already Started

WASHINGTON, Feb. 5—The Ford Motor Co. is to manufacture submarine chasers at the rate of a completed boat a day. Word to this effect and additional information that one vessel has already been started has been made public.

As is to be the case with the 150-ft. vessels to be manufactured by the Elco Works, Bayonne, a brief description of which was given in Motor World last week, these sub chasers which Ford will build are to be highly standardized products. They are to be 200 ft. long and of 500 tons displacement. The boats will be fabricated largely of structural steel shapes by the progressive assembly method and will be launched at Detroit and taken to the sea by way of canals and inland waterways. Power will be furnished by geared steam turbines. There will be nothing freakish about the boats or their equipment. The number of boats ordered has not been revealed.

Iowa Garages Shorten Hours

DAVENPORT, IOWA, Jan. 31—Garages of Rock Island, Moline and Davenport have voluntarily agreed to shorten their working hours from 9 a. m. to 4.30 p. m. during the present coal shortage, to help conserve coal. The Fuel Administration men did not order garages to shorten their hours, but the members of the Tri-State Automobile Trades Assn. decided that patriotism consists in doing more than merely obeying orders.

To Auction Mutual Feb. 7

DETROIT, Feb. 2—Receivers will sell at public auction, Feb. 7, the plant and furnishings of the bankrupt Mutual Motors Co., Jackson, which made the Marion-Handley automobiles. Assets are inventoried at $1,400,000. It is expected that the Jackson Munitions Co., which was recently organized in Jackson to make war munitions, will be one of the bidders for the defunct plant.

Shepler Moves to Cleveland

WASHINGTON, D. C., Feb. 2—Major Harry Shepler, formerly vice-president of Willys-Overland Co. and now in charge of production for the aviation section of the Signal Corps, is moving his offices to Cleveland and will have charge there of the Government aviation production supervision.

Ford Building to Be Used by Ordnance Branch

WASHINGTON, D. C., Feb. 4—The Ford Building here will not be occupied by the Quartermaster Corps, as was first planned, but will instead be taken over by the drafting and designing branch of the Ordnance.

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Maxwell Farm Tractor To Sell at Low Price

Start Production of Four-Wheel Machine This Summer—Can Be Used on Roads

CHICAGO, Feb. 1—Maxwell has brought out a farm tractor.

The machine was sprung as a complete surprise last evening at a meeting of Maxwell-Chalmers dealers at the Congress Hotel.

The tractor is a small affair with four wheels, drive at the rear axle, extension axles, 12-in. tread behind with two attachable treads making the drivers 3 ft. wide for sand. It does not look unusual or freakish in any respect.

The price was not made public, but it was stated that it would compare as does the price of the Maxwell with other cars, which is taken to mean that it will be a low-priced machine.

Production will be coming through some time this summer.

The tractor has been in process of development on a sugar plantation for four years outside New Orleans. There it was known as "The Chief," a term applied to Walter Flanders by many in the organization. Hereafter the tractor will bear the Flanders name.

The tractor was sprung on the dealers by moving pictures, which showed the machine doing everything a mule could do except eat. One of the most important points is that the tractor is designed to draw the machinery that is to-day existing on thousands of farms. Special machinery is not necessary.

The treads can even be fitted for asphalt pavements, permitting the machine to be used in running farm products to town. It built roads, drove piles, sawed wood, climbed grades, drew all the plantation machinery and even cultivated.

$37,898 for Pullman Creditors

YORK, PA., Feb. 2—Receivers for the Pullman Motor Car Co. have filed a report with Judge Charles B. Witmer, of the United States District Court at Scranton. Unless exceptions are taken to the accounts of the receivers within 30 days the report will be finally confirmed at the March session of the district court. The receivers' report shows a balance of $37,898.36 for distribution among creditors.

Iowa Dealers Enlist Mechanics

DAVENPORT, IOWA, Feb. 5—At the request of W. E. Hall, national director of the United States Public Service Reserve, the Tri-City Automobile Trade Assn. has appointed five dealers in Rock Island, Moline and Davenport as enrollment agents to help secure motor mechanics for General Pershing's army in France. They are: A. B. Johnson, Davenport; R. E. Bedee, Davenport; S. J. Peterson, Moline; A. F. Sala, Rock Island; and John Goeden, East Moline. The agents will enroll mechanics who apply for service and carry on an aggressive campaign to enlist men outside the draft age for mechanical work in the army.

F. W. D. Doubles Capital

CLINTONVILLE, WIS., Feb. 2—A stock dividend of 50 per cent was declared at the annual meeting of stockholders of the Four Wheel Drive Automobile Co., Clintonville, Wis., which is executing a contract for military trucks for the Government, involving about $50,000,000. The dividend increases the capital stock of the corporation from $1,000,000 to $2,000,000. A year ago the capital was increased from $500,000 to $1,000,000. J. D. Cotton was elected a director to fill the vacancy caused by the death of John Kalmes, treasurer, several months ago.

Assembly Contracts for AA Trucks

WASHINGTON, D. C., Feb. 2—The Motor Transport section of the Quartermaster Corps plans to issue contracts for the assembling of the Class AA trucks in about the same manner as is being pursued with the Class A truck. This means that the manufacturers, or assemblers, will deal directly with the parts makers. In the case of the Class B truck, the Government dealt directly with the parts makers, and supplied the parts to the assemblers.

Will Map Truck Routes

WASHINGTON, Feb. 5—The Pathfinder car of the Highways Transport Committee of the Council of National Defense starts this week mapping out army truck routes for the Government. The committee has already laid out an official route from Detroit to the seaboard and another from Buffalo to the seaboard; it is now proposed to tap every truck manufacturing point in the central west and pick out feeder lines to two great main highways running eastward. The pathfinder will go as far west as the Mississippi river and will map routes from cities in Wisconsin, Illinois, Michigan, Indiana and Ohio. The car will be in charge of Raymond Beck, field engineer of the Highways Transport Committee; with the car will be Major W. D. Uhler, formerly State Highway Engineer of Pennsylvania and now connected with the Motor Transport Service of the Quartermaster's Department, and Captain E. B. Butchers, Brigade Engineer of the U. S. Engineers' Corps.

As each state line is reached a representative of the State Highway Department will join the car and proceed over the roads of his own state. When this trip is completed the Government will have four main highways forming connecting links between the great manufacturing centers of the country and the Atlantic seaboard. Motor transports on their way to France will follow these routes and will carry cargoes to relieve freight congestion. The drivers will secure their training under service conditions and be better fitted for their tasks of driving when they reach the war zone.

585 Members Now in Illinois Association

At Fifth Annual Convention Reports Show Organization Is in Good Condition and Growing

CHICAGO, Feb. 1—The garagemen of Illinois, who have been building a state association for four years, this week held their fifth annual convention in this city. The organization now has 585 members. There are 400 more who are not members, but who contributed $3 each to a lien law legislative fund of $2,100 and who may be taken in by special act of the board of directors. The lien law was passed. The association has no debts and a small bank balance.

The name was changed to Garage Owners' & Automobile Dealers' Association of Illinois and provision made for the membership of dealers who do not operate garages.

Charles L. Turner, Peoria, who has been active in the work since it began, was made president. The other officers are: First vice-president, John McNeil, Centralia; second vice-president, Fred R. Young, Moline; secretary-treasurer, H. E. Halbert, Chicago.

Under a reorganization plan a director is to be chosen from the members in each of the 51 senatorial districts of the state. These directors will elect an executive committee of five, including the president and secretary. One meeting a year will be held. The next session will be in Rock Island, probably in the late summer or fall.

Dues are $2.50 every six months. Local associations pay a charter fee of $25 and $1.50 per capita instead of the $2.50 semi-annual dues, but after the first year pay $1 semi-annually.

An attorney is to be retained in each district to look after the affairs of members. Every active member of a local is an active member of the state association. Delegates are eliminated in conventions, each member having a vote.

Among the things done and to be done are: Support the American Fair Trade League; investigate insurance and secure a cheaper rate; plan a collection system; prepare forms for use in utilizing the lien law; prepare work order forms to be signed by customers, such forms incorporating a judgment note clause; thanked governor and legislature for supporting the lien law; made the governor and all members of the legislature honorary members of the association.

The meeting was held in the Green Room of the Congress Hotel the forenoons of Tuesday, Wednesday and Thursday.

Missouri Bans Plain Lenses

ST. LOUIS, Feb. 4—The new state law which prohibits plain lenses on motor car lights became effective Feb. 1 and accessory stores had the most rushing week of their existence.

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Demand for Tractors Not Filled by 5 Per Cent

So Says Kettering, of S. A. E., in Best Attended Tractor Meeting Ever Held—Not Possible to Standardize Yet

CHICAGO, Feb. 1—To-day's meeting of the tractor section of the Society of Automotive Engineers marks one of the first real steps in advance in this department of the society's work since the broadening of its field to fully include all automotive products. Broadly speaking, the work accomplished to-day was more the laying down of a future program of development than an accomplishment of progress in engineering detail. The work of the S. A. E. to-day was the sketching of the outline into which the picture of future developments will fit as the industry shapes itself and becomes more mature.

As President Kettering said, not 5 per cent of the demand for tractors has been filled. The industry is in its infancy, and we know so little of the tractor and so little of the problem which confronts us that it would be absurd to attempt to deal with detail at this early date. This feeling was common to the other engineers present, with the result that the broadest aspects of the tractor problem were considered. To again quote President Kettering, the tractor problem is 50 per cent engineering and 50 per cent psychology. Unless a tractor company studies the psychology of the farmer along with the engineering problems of the tractor itself, it will fail.

The program of the meeting included four papers on tractor service, tractor design, tractor engines and tractor transmissions, presented respectively by George Cormack, Appleton Mfg. Co.; George Strite, consulting engineer; H. C. Buffington, Minneapolis Steel & Machinery Co., and E. R. Greer, Emerson-Brantingham Co.

George Cormack's paper outlined the service that the tractor is to render this country in the time when agricultural products are such a vital factor in the welfare of the world. He spoke on the ethics of the manufacturer in forgetting the fact that he primarily engaged in manufacturing for the purpose of making money rapidly. In other words, tractor service means something more than the mere maintenance of the tractor in the field and in the repairshop.

It means the broadest kind of service which can be rendered by machines which are built by concerns which do not put out a product in which quality is slighted and profit only considered.

The other three papers were concerned more strictly with the engineering phases of tractor development Probably the biggest lesson in the engineering end of the program is held up for the attention of automobile manufacturers who are endeavoring to enter the tractor field. The differences in fundamentals between tractor and automobile engineering are so great that automobile men must bear them continually in mind unless they wish to waste vast sums of money in learning the lessons that are at their disposal if they will only recognize with an open mind the facts which have already been discovered by men who have studied the tractor field for the past decade.

As summed up by President Kettering, the tractor engineer must remember that the tractor differs from the automobile in one very important respect: It will not coast when attached to three or four plows. When a machine is rated at 20 horsepower it must deliver 20 horsepower continually from one end of the day to the other. There can be no shirking on the part of the machine, because when it is needed by the farmer it is needed badly and must run with or without attention so that it performs its tasks in the desired manner.

1200 Attend War Dinner

The culmination of the program was in the war dinner held in the evening. More than 1200 were gathered at the biggest function ever held by the S. A. E.

The speakers were General Kener, commanding Camp Grant; H. L. Horning and W. H. Van Dervoort, who presided jointly; C. F. Kettering, president of the S. A. E.; Major W. G. Wall, of the ordnance department and a Major of the French army. The speakers without exception dealt with the national problems in connection with the war and told how we are overcoming the great difficulties of raising within a few months an army that normally would require years to get together.

Captain Donaldson of the ordnance department asked for volunteers during the afternoon meeting for men to go to France as ordnance officers for all around engineering service. He secured nearly twenty applications during the afternoon from men who are strongly interested in the tractor service and will probably have an increased number from the engineers in attendance at the meeting.

George Strite touched on the demand for the highest power on the part of the farmer. He said that even in the days of the big tractor pulling eight or ten plows the pressure and influence exerted by the customer for just a little more power was almost irresistible and the temptation was continually to build something larger, although sound engineering knowledge pointed out that the smaller machine was sure to come into favor. Mr. Strite dealt with the difficulty of clearly explaining horsepower to the farmer and stated that power should be rated as in terms of displacement or simple pull in pounds.

H. L. Horning in discussing this paper stated that the matter of the standard liberty tractor for government use had come up in Washington from time to time and it was proposed at one time to adopt the Ford tractor as England has done and other types were also considered, but finally no standard was adopted. It was the consensus of opinion that the tractor is not old enough to standardize. We are just starting on an era of big things in the tractor work, and we will greatly regret it if we try to go too far with standardization which will hamper future progress.

C. F. Kettering spoke of the differences between automobile engineering and tractor engineering, and stated that owing to the fact that the tractor is continually under full load it is necessary for the automobile engineer to entirely revise his ideas concerning engine performance. R. E. Davis of the Moline Plow Co. stated that automobile and tractor engineers could learn much from each other and one point which should be particularly closely studied is that of the automatic lubrication of parts. The farmer will not stop to lubricate his machine and so it is necessary to so design the bearing parts that oiling is of an automatic nature as far as it is possible to make it so.

Happy Farmer Adds $1,000,000

LA CROSSE, WIS., Feb. 4—The La Crosse Tractor Co., La Crosse, Wis., manufacturer of the Happy Farmer tractor and other agricultural machinery, has increased its capital stock of $1,500,000 to $2,500,000 to accommodate its largely increased business. The company is working at maximum capacity with a force of 400 men in the execution of large foreign and domestic orders for tractors. Within the past year it has more than doubled its output and at this time it is making extensive additions to its capacity.

Stock Show Brings Sales

DENVER, Jan. 30—The motor car industry in the Rocky Mountain territory is enjoying a winter prosperity stimulus from last week's National Western Stock Show, which brought to Denver thousands of visitors from Colorado and neighboring states. Leading distributers are elated over resulting sales already closed.

Farm Tractor Now Fond du Lac

FOND DU LAC, WIS., Feb. 4—The Farm Tractor Co., Fond du Lac, Wis., builder of farm tractors and power machinery, has changed its corporate style to Fond du Lac Tractor Co. to better designate its business and to avoid confusion resulting from the former style. The company has a capital stock of $20,000. Fred J. Rueping is president and M. M. Cory is secretary.

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Emergency Call For 7000 Motor Mechanics

Additional Men Needed to Serve With Aviation Corps—Must Be Outside Draft Age

WASHINGTON, D. C., Feb. 4—An emergency call for 7000 additional motor mechanics for service with the Aviation Corps in France has been issued through the United States Public Service Reserve, which is a division of the Department of Labor here. These 7000 will be men outside of draft age, the ages specified being 18-21 and 31-40, inclusive. The plan is to send all of these men to France as soon after Feb. 4 as possible.

The list of those required includes men for all kinds of work, such as mechanics for all parts of the chassis, bodies, and workers for machine shops, tire repair departments, motorcycles, sheet metal, electrical apparatus and instruments for airplanes.

The salaries to be paid range from $30 to $87 per month. When the allowances for dependents are added these limits of salary are raised from $68.50 to $129.70 per month.

The men required are to be formed into regiments, and the classification follows:

	No.	
Privates	506	$30 to $68.50
Privates, first class	2,024	33 to 72.10
Corporals	2,064	36 to 75.70
Sergeants	1,806	44 to 85.30
Sergeants, first class	522	53 to 96.10
Master Signal Electricians	82	87 to 129.70

Weld County Trade Organized

DENVER, Feb. 4—The Weld County Auto Trades Association, with headquarters in Greeley and directors also in Eaton, Evans and Windsor, has just been organized by Secretary Harry G. Moock, of the Rocky Mountain Auto Trades Association. The officers are: President, D. R. McArthur, Buick dealer; vice-president, C. E. Sherman, Cadillac and Studebaker dealer; secretary-treasurer, W. I. Heath, Ford dealer. The new organization has started with thirty members, the majority of whom have also affiliated with the Rocky Mountain Auto Trades Association through individual memberships. The first regular meeting was held last week, and was attended by Secretary Moock and four prominent Denver tradesmen, and also by tradesmen from Fort Collins, Col., and Cheyenne, Wyo. The plan is to meet twice a month.

Start Wire Wheel Patent Suits

NEW YORK, Feb. 4—The Wire Wheel Corp. of America has started suit charging infringements of five of its wire wheel patents, Nos. 1,047,742—Pugh; 760,684—Cowles; 1,030,428—Cowles; 1,076,558—Duffy, and 1,125,498—Duffy. The suit, has been entered against C. T. Silver, Metropolitan distributer of Kissel and Apperson cars on the grounds that cars exhibited by Silver are equipped with Frayer type wheels made by the Phelps Mfg. Co., Columbus, Ohio.

Dorris Gets Mogul Plant

ST. LOUIS, Feb. 1—The Dorris Motor Car Co. has acquired the plant of the Mogul Motor Truck Co., which adjoins the Dorris plant. A receivership recently was asked for the Mogul Co. The Dorris company also has acquired as a building site a lot adjoining the plant, 200 x 177, and plans are being made for the extension of the factory on this site.

Plan Registration of New York Drivers

ALBANY, N. Y., Feb. 2—The executive committee of the New York State Automobile Association has instructed the Law and Legislative Committee to have reintroduced in the legislature a bill providing for the registration of all drivers in the State of New York. Such a bill, applying only to the city of New York, was passed by the last legislature. The association also favors an amendment to the present headlight law to provide for the making of tests by competent experts selected by the Secretary of State to ascertain if the different devices and lenses now in use comply with the law.

Another proposed bill to be backed by the association will be one compelling every garage, filling station, accessory house and others dealing in oil or gasoline to conspicuously display on or within 5 ft. of the gasoline pump or oil tank the price of gasoline and oil and the grade and make of oil which they are offering for sale in letters to be easily distinguished at a distance of 50 ft.

Botterill N. A. D. A. Vice-President

DENVER, Feb. 4—Tom Botterill, veteran motor car dealer, has been chosen Colorado vice-president of the National Automobile Dealers' Association to serve the unexpired term of Walter J. Haughey, who has resigned. Botterill is Pierce and Hudson distributer for Colorado and adjacent territory and Dodge dealer for Denver and vicinity, and Haughey is sales manager of the MacFarland Auto Co., Buick distributer for Colorado and Wyoming. Both are well known in the Rocky Mountain territory and members of the Denver and Rocky Mountain Auto Trades Associations.

Globe Truck Officers Elected

EAST ST. LOUIS, Feb. 5—The Globe Motor Truck Co., at its first annual stockholders' meeting, elected the following officers: President, David A. Marks; vice-president, Christopher Beckemeier; secretary; Nansen J. Marks; directors, David A. Marks, Louis Hughes, George Baeker, John Soy, George Chapline, Christopher Beckemeier and William G. Meiher. The company was formed in January, 1917.

Denver Not Affected By Freight Situation

Distributers Fear That Serious Conditions May Develop In Next Few Weeks or Months

DENVER, Feb. 4—The freight car situation has not yet handicapped the majority of Denver distributers very seriously, although delayed shipments have already become a hard problem for some and there is considerable anxiety in general regarding conditions likely to develop during the next few weeks or months. The main features of the delivery situation in this territory are indicated by the following reports from several distributers:

MacFarland Auto Co. (Buick)—Perhaps harder hit than any other distributer right now. Unable to fill half of orders, and notifying all dealers not to ask for more than half of their contract allotment for this month. Extra trouble due to inability to trace shipments. Besides making it impossible to get a practical basis for promising deliveries, this difficulty also hinders the diverting of shipments to dealers getting carload lots out in the territory, a system used to reach Colorado common points direct, in order to save extra freight charges to the same points if shipments come first to Denver as terminal and are then reshipped to final destination.

E. J. Johnson (Chalmers and Maxwell)—No trouble thus far. Well enough stocked to tide over emergency.

Cadillac Motor Company of Denver—Shipments are slow, but freight car shortage not held as the cause. Mainly a supply situation at factory.

W. W. Barnett (Oldsmobile and Federal and Stewart trucks)—Trouble in getting trucks mainly a production problem at present, but Oldsmobile shipments hindered considerably by freight situation.

Miller-Ray Motor Co. (Kissel)—Fairly well fixed now on passenger cars and better on trucks. Prepared for emergency by ordering large supply ahead, but complete tieup continuing two or three weeks longer would have serious effect. Factory reports unable to get freight cars for past week.

Tom Botterill (Pierce, Hudson and Dodge)—Fair, though short. Shipments running about 60 per cent of contracts. Impossibility of tracing is a hard problem. "But not kicking," says Mr. Botterill. "If shipping fewer motor cars will help win the war, then I'll be glad to wait as long as necessary."

Platt-Fawcett (Oakland)—No trouble thus far.

Automobile Sales Corp. (Franklin and Studebaker)—No trouble so far, and well situated for few more weeks. New models not yet due, and expected in time to meet needs unless freight conditions become a great deal worse.

Overland distributing branch—Plenty of cars in stock from extra supply in December.

Ford branch assembling plant—Shut-down last three days from lack of parts, but expect to start running again by three days more.

A few distributers report the freight situation partly offset by the Eastern embargo and the drive-away blockade by bad weather in factory districts, because these two factors lessen the out-

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put shortage temporarily and release more cars than usual for this territory. In fact, some have been able to get more cars than they were a year ago. Sales have averaged somewhat slower during the holiday season, but the trade outlook is satisfactory in general. Local freight conditions have been helped considerably by weather favorable for driving away cars by outside dealers. A great deal of this is being done, except in the higher mountain districts, and there the demand is much less at this time of year.

Detroit Used Car Show Successful

DETROIT, Feb. 5—The show of used cars and trucks which is being promoted by the Detroit Automobile Dealers Association is proving successful. It was opened in the Overland Building Feb. 2 and will continue till the end of this week. On the first day about 2000 persons passed the gates and several sales were made. There are nearly 300 cars and trucks displayed and nearly every prominent dealer in Detroit has space. Admission is by tickets distributed free by dealers and obtainable at all hotels and newsstands.

Eschner Heads St. Paul

ST. PAUL, Feb. 6—The St. Paul Automobile Trade Association has elected officers as follows: President, Le Roy Eschner; vice-president, E. H. Nolan; secretary-treasurer, L. W. Jordan; directors, Dr. A. A. VanDyke, L. C. Roller, H. A. Brandtjen, B. F. Powers, W. H. Schmelzel.

Western Fuel Administrators Meet

KANSAS CITY, Jan. 30—Fuel administrators of Kansas, Missouri, Oklahoma, Arkansas, Nebraska and Iowa held a conference in Kansas City January 21, especially to discuss the proposal to appoint distributers by zones, and to perfect the co-operative arrangements for supplying coal to these states. There was agreement that the season is too far gone for zone distributers to be of much avail in this district now.

So far, no state administrator in this group has issued orders for the suspension of any manufacturing enterprises, or its curtailment, with these two exceptions: In Kansas, Emerson Carey passed along the federal order for the curtailment of straw board factory work; and in Missouri, Wallace Crossley has included breweries in his general order for the closing of saloons and amusements Mondays and Tuesdays. In Missouri, there are restrictions on the use of lights, office buildings being closed at 7 p.m., all lights being out (except enough necessary to show the way) downtown, banquets, theaters, stores, etc., at 10 o'clock at night; stores except food stores, open only from 7 to 7.

Matinee Price for St. Louis Show

ST. LOUIS, Jan. 28—The St. Louis Automobile Show, Feb. 18 to 23, announces a matinee price from 11 a. m. until 5 p. m. of 25 cents admission, war tax added. After 5 p. m. the admission will be 50 cents, war tax added.

California Registers 306,247 Motor Cars

Gain of 31 Per Cent Over 1916—State Shows Record Increase—97,000 Cars in Los Angeles

LOS ANGELES, Jan. 30—Report on the registration of motor cars in the State of California for 1917 shows 306,247 on the list, a gain over 1916 of approximately 70,000, or 31 per cent. This is the largest increase in registrations in the history of the State Motor Vehicle Department. Los Angeles led all counties in the State with a gain of 21,327, and now has practically 97,000 registered cars within its precincts. This is more cars than were in 33 States of the Union, according to reports last July.

Motor car sales did not slump following the declaration of war by the United States, and it began to appear as if the example of Canada, where sales have gained materially, would be emulated here. Since the dawn of 1918, though, there has come a change. January business is slower than January, 1917, and dealers are beginning to feel apprehensive for the future.

Owing to shipping conditions, it has been impossible for one or two dealers to supply the demand, but two weeks of normal conditions would put cars on hand. It is expected now that factories in the East will begin crowding the dealers here with deliveries soon. One big producer already has sent a trainload of cars to this point, and all have gone into warehouses because dealers would not take them up.

Changes in Goodyear Branches

AKRON, OHIO, Jan. 26—The Goodyear Tire & Rubber Co. has made the following changes in branch managers: P. A. Kerns, formerly manager at Butte, Mont., has been made manager at Buffalo, N. Y.; W. J. Peete, who has been handling government business at Washington, will succeed Kerns at Butte; F. L. Morgan has been promoted from assistant manager at Philadelphia to manager of the Cleveland branch, succeeding F. N. Hammond, and R. J. Davies, formerly city salesman at Jacksonville, Fla., has been appointed manager of the Nashville, Tenn., branch, succeeding E. H. Morris who has entered government service.

Brewer-Mosel Co. to Sell Wisconsin Tractor

SAUK CITY, WIS., Jan. 31—The Wisconsin Farm Tractor Co. has concluded arrangements with the Brewer-Mosel Automobile Co., Madison, Wis., to market its entire output for 1918, giving it exclusive representation of the Wisconsin line in the United States and foreign countries. An active sales campaign already has been undertaken.

The Wisconsin company was organized two years ago by Earl McFarland and John Westmont, Lodi, Wis., to manufacture an all-steel tractor. The firm leased the new plant erected at Sauk City, Wis., for the Shaw Motor Co., Chicago, but never occupied by that concern. A short time ago the business was incorporated under its present name, with an authorized capital stock of $100,000 and arrangements made for a greatly increased output. The principal model is a 16-32, using kerosene as fuel, and is capable of drawing 4 plows. It also can be used as a power plant for grain separators and other farm machinery. It retails at $1,850. The Brewer-Mosel company was organized in December, 1915, and is a district distributer of the Maxwell in 10 southwestern Wisconsin counties, and has 38 sub-dealers. It sold 559 Maxwells in 1917 and its 1918 contract calls for 600 passenger and 163 1-ton Maxwell commercial cars. O. F. Brewer is vice-president and general manager.

Passaic, N. J., to Organize

PASSAIC, N. J., Jan. 31—A movement is on foot for organizing a trade association among local dealers and garagemen. According to the present outlook, it will be possible to get about 40 members of the trade together. The first meeting is scheduled for Feb. 5, at which time by-laws will be adopted and officers elected.

Gary Has 1½-Ton Model

NEW YORK, Jan. 31—In the description of the truck made by the Gary Motor Truck Co., which appeared in a recent issue of Motor World, it was inadvertently stated that in addition to the three larger sizes made, namely, 2, 2½ and 3-ton capacity, two others of 1-ton and 2½-ton capacity also are made. This should have read 1-ton and 1½-ton capacity.

Rockford Dealers on Cash Basis

ROCKFORD, ILL., Jan. 31—At a dealers' meeting some of the principal members in the Rockford Automobile Dealers' Assn. voted to go on a cash basis and also to use the trade acceptance. The Joslyn Automobile Co. has cut down its number of charge accounts from 1250 to 207, the rest of the business being done for cash or acceptance, the acceptance being due the 10th of the month following the date of purchase. This releases a large amount of capital for the transaction of business.

Scrap Metal Prices

NEW YORK, Jan. 31—Following are prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age:*

	Cents Per lb.
Copper, heavy and crucible (nominal)	23.50
Copper, heavy and wire (nominal)	23.50
Copper, light and bottoms	21.00 to 21.50
Brass, heavy	17.00 to 17.25
Brass, light	12.25 to 12.50
Heavy machine composition	24.00 to 24.25
No. 1 yellow rod brass turnings	13.50 to 14.00
No. 1 red brass or composition turnings	19.00 to 20.00
Lead, heavy	6.25
Lead, tea	5.00
Zinc	6.00

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Tractor Dealers to Solve Farm Labor Problem

Kansas Dealer Is Convinced Demand Will Be for Medium Size and Power Tractors

KANSAS CITY, Feb. 1—While state officials and county agents are doing all in their power to obviate the imminent shortage of farm labor in Kansas the tractor dealers of the state are doing all in their power to have prospective tractor buyers put in their orders early and make an early decision as to the size and character of tractor they will require for farm use this year.

Among the thousands who gathered at Farm and Home week at the Kansas State Agricultural College at Manhattan the week of Jan. 21 were many tractor dealers who came in to feel out the pulse of the farmers of the state and to see what the tractor demonstrations and lectures given by the engineering and farm machinery departments of the State Agricultural College brought out.

These tractor dealers also were anxious to ascertain, as are all the farmers of the state, the exact status of the labor situation in Kansas. Many of these tractor dealers have automobile salesrooms and garage and repairshops, and are beginning to deal in motor trucks, and they not only have to face the problem of assisting the farmer to secure labor-saving farm power but they have to face the problem for themselves of securing men to aid them in their garages, repairshops, and to give service to tractor buyers and users of tractors.

R. N. Davis of Mankato, who has the entire area of Jewel County for one of the leading tractor concerns and an equally large automobile and motor truck factory, is confident that he will be able to get all his orders for tractors in by March 1, and has taken a scientific survey of the situation in Jewel County which is typical of all the other counties of the state, unless it is the big wheat farm counties more to the southwest of Manhattan. Davis is an extensive farmer himself. He operates two tractors on his own farm, one an 8-16 and the other a 30-60.

At the conclusion of his stay at Manhattan last week, and after conferences with many other tractor dealers and hundreds of tractor users, Davis said that he was convinced that the demand for tractors in Kansas this year will be for the medium sized and powered tractor, one between the 8-16 and the 30-60 types.

Davis based this opinion on the conditions growing out of the labor shortage. The 8-16 tractor will draw two plows on a majority of Kansas farms, and on but a few will draw a three-bottom plow.

But few farms in the state have area enough to justify the purchase of the 30-60 types, he states. Most of the farms requiring this type of tractor, which is used for threshing and hauling after the crops are harvested, already have them in use, so the demand for this size of tractor is now at a minimum.

On the other hand, the demand for increased production with fewer men and with a lessened man power is such that the 8-16 size tractor is hardly large enough to meet the exigencies of the times in Kansas. The farmer who can operate an 8-16 finds no difficulty in taking over the operation and management of a 15-30, and this is the type Davis professes to see in demand in Kansas this season.

Such a type and size can be used for threshing, especially where there are community-owned threshing machines. They will haul good big wagon trains, and they fill in all uses on the farm such as ensilage cutting and feed grinding.

For some of these tasks the 8-16 is considered rather small in view of the fact that the tractor must play a more important role in Kansas farm activities this year than ever before.

The horse shortage in Kansas is acute. The remount service of the United States Army has taken all the big Percheron geldings available and that farmers would sell, and at prices that are far above those ever paid in Kansas for horses. With these horses gone to war the Kansas farmer must naturally turn to the tractive internal combustion engine, and he has the money with which to buy.

Many farmers who had moved to the towns and cities of the state to take life easy, leaving their farms in the care of renters or tenants, are going back to the farms this spring. This was brought out strongly in the Farm and Home week at Manhattan. All these returning forces are thoroughly acquainted with the use of automobiles and have naturally watched with keen interest the progress made in tractors. If they do not already have tractors on their farms they will turn to them at once, dealers who looked the situation over closely predict.

Tractor dealers, particularly those who have motor truck and automobile lines in connection with their tractor sales, are trying to find a way out of the problem of labor for repair and service branches of their business.

Co-operative deliveries of merchandise in the cities and towns of the state will release many motor truck and motor car drivers to the garages, and to tractor, motor car and motor truck dealers. These boys and young men, most of them under draft age, will prefer to keep in touch with motors rather than to engage in more arduous work, tractor men, automobile and motor truck dealers say. If this is true the problem of labor for the tractor and garage and motor car dealers out in the state will be partially solved.

Southwest Big Tractor Buyer

Sales to Dealers at Oklahoma Tractor Show Unprecedented—Big Display of Tillage Tools

OKLAHOMA CITY, Feb. 4—The southwestern states, where an unprecedented demand for tractors has set up in the last six months, patronized the Oklahoma City tractor show the week of Jan. 21 to 26.

The attendance, when figures were analyzed, showed that 80 per cent of those who registered were farmers from Oklahoma, Texas and Arkansas, this being an extraordinarily large percentage of farmers over dealers. Particularly favorable weather augmented the attendance of the show which was held in the Emmerson - Brantingham Implement Co. building, using two entire floors.

Sales to dealers were far beyond all the expectations of the firms participating, and these sales to dealers were eclipsed in the sales to farmers direct. The same clamorous demand for tractors with which to conserve man power and bring about increased production that is prevalent in the corn belt states at this time is prevalent in the grass and wheat belts of the southwestern states. Crop prospects have been given a roseate hue by the unprecedented snowfall all over Oklahoma, parts of Texas and Arkansas and good rains over the remaining sections of these states. Southern Kansas sent a fairly good representation of dealers and farmers to the Oklahoma City tractor show.

Twenty of the leading manufacturers of tractors and one make-a-tractor concern had individual exhibits. The display of tillage tools adaptable to use with tractors was extremely large and this proved a very attractive feature of the show.

Practically every farm implement that can be propelled by a tractor was shown in its relation to tractor service, and virtually every farm machine that requires belt power was shown in similar relations. Nowhere has the adaptability of the tractor to all kinds of farm uses been so efficiently and cleverly shown as at the Oklahoma City tractor show. The

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Oklahoma City show was as liberal in its lessons taught as the patronage that accrued to the exhibitors through visualized tractor uses.

Oklahoma, Texas and Arkansas automobile dealers who can secure tractor agencies are hurrying to do so in view of the great demand that has come in that section for tractors. They have the trained sales and service forces and the acquaintance and the capital to stock tractors and push sales to the farmers whose wants they are particularly fitted to gauge and serve.

High Wages Drawing Mechanics to Big Towns

SACRAMENTO, Feb. 4—High wages and steady work offered by automobile shops in the larger cities of California are fast depleting the supply of mechanics in the small towns.

The country garage has to a large extent become a one man concern in which the proprietor is compelled to don overalls while the wife or daughter attends to the clerical work and oftentimes to the gasoline tank.

Various means to offset the shortage of labor have been devised and where local trades association exist the efforts have been fairly successful.

In Richmond, the largest city of Contra Costa County, garagemen and dealers have adopted and are strictly enforcing a spot cash policy. Although in operation since Dec. 1, the innovation has caused no loss of business, and whether the customer be the Standard Oil Co. or the humblest jitney driver *spot cash* is insisted on and paid.

The young garagemen of Santa Rosa and Petaluma are calling on their "dads" and uncles for aid in the emergency. Many a retired rancher may be found tinkering around his son's shop and in several instances the wife was found to have assumed management.

Sebastopol, Healdsburg, Cloverdale and Ukiah have formed local organizations, each member of the automobile fraternity helping his neighbor when called upon.

The absence of a get together spirit among the garagemen of Napa and Dixon has resulted in the failure of several attempts at organization, and the trade is suffering considerably from price-cutters and bad accounts.

The "dog eat dog" policy is probably more strongly developed in Dixon than in any other city of the state. The rate war started when one garageman reduced storage rates to $1.50 a month; the cuts were not only met, but reduction followed reduction until the suicidal policy of "free storage" was adopted.

The car owner of Dixon pays nothing for storage or garage service; often he buys his automobile necessities in San Francisco or Sacramento, leaving his friend the garageman ruefully holding the sack.

Business among automobile and truck dealers of Sacramento and Stockton has never been better. In the Capital City many new automobile buildings have been erected and several are in course of construction.

80,000 Aviators Ready for Overseas Service

This Despite Many Delays in Getting Necessary Mechanics and Airplane Material

WASHINGTON, Feb. 4 — Although there are now 80,000 aviators trained, or nearly trained, and ready for service with the American Aviation Fleet, it has not all been plain sailing to fit these men for the work and to provide them with the planes necessary to do the work. There have been hitches and halts but it is hoped now that many of these troubles have been remedied and that from this date forward the production of both men and machines will continue with much greater smoothness than it has in the past.

At the meetings which were held last week by the Senate Military Affairs Committee to ascertain what progress had been made in the aviation branch of the war machinery, it was brought out that America's aviation program, which will cost $1,000,000 in addition to the $640,000,000 already expended, has been delayed 2 months because of necessary changes in the type of combat machines which have been essential because of constantly altering plans to meet the ever-changing German tactics.

There has also been a delay in the drafting of thousands of skilled tool makers who have been assigned places in the national army instead of in the aviation section where the production of planes and engines might have been speeded up with their help.

It was also brought out that there has been a scarcity of spruce and that this has been caused by the unwillingness of great lumber concerns to cut sufficient lumber to produce the spruce needed; a contributary cause has been the absence of an official in the lumber districts who is clothed with full authority.

That an additional appropriation of $1,000,000,000 would not be too much with which to carry out properly the aviation program was indicated in one statement which was made by Col. E. A. Deeds, who brought out that the life of a battle plane used at the front is only about two months, after which it must be replaced with a new machine.

Making Boys Into Tractor Experts

HUTCHINSON, KAN., Feb. 4—C. O. Hitchcock, an implement dealer of Hutchinson, has established a school for high school boys which meets every Friday afternoon for instruction in farm machinery and tractors. The boys are given actual work on the equipment and tractors to prepare them for going onto the farms this summer and taking care of the machinery in doing farm work. While this is an original enterprise with Hitchcock, it fits in nicely with the plans of the Federal and State agencies for educating city boys in the elements of farm work so that they might be useful on the farms this summer.

Spokane Branch for Chevrolet

FLINT, Jan. 31—The Chevrolet Motor Co. is establishing a branch at Spokane, Wash., under the management of W. C. Hendricks, who for some time past has been assistant sales manager at the Oakland, Cal., factory. The territory covered by the branch includes northern Idaho and eastern Washington.

Kansas Farmer to Prove Utility of Automobile

KANSAS CITY, Feb. 1—The words "pleasure cars" can hardly be applied to any Kansas automobile according to members of the extension department of the Kansas State Agricultural College, as the results of observations gained through Farm and Home week at Kansas State Agricultural College at Manhattan last week, Jan. 21 to 26.

Kansas is now entering on the most highly specialized and intensified program of increased production and conservation any state in the Union ever attempted. Every instrument of activity is enlisted in the campaign for bigger crops in Kansas in 1918. This means that Kansas will try to eclipse all her past records for the production of wheat, oats, corn, beef, pork, wool and mutton and all the smaller grain and garden crops as well.

The automobile in Kansas this year will be a pleasure car only in the sense that the Kansas farmer will take his family to church on Sunday or to the community meetings that are being planned for evenings all over the state and at which increased production will be the theme.

If the farmer goes to town in his automobile it will be to secure supplies for the farm or repairs for his farm machinery. If the merchant goes to the country in his automobile during the growing season of 1918 it will be to give service to some farm tractor or some farm engine or motor truck that is doing service in the campaign of increased production in 1918, or to convey supplies to some farmer who is too busy plowing or seeding or harvesting to go to town for the things he needs.

Kansas has outlined for itself a program that will require 8 hours work twice a day for 6 days each week on a schedule that will call for 60 miles an hour every one of the 16 working hours of those 6 days.

This means that every tractor will be driven from daylight to dusk to plow and seed and harvest.

Horses are too slow to speed up the production propaganda of Kansas for 1918. Only the automobile can fill the need of the Kansas farmer for auxiliary service to this production campaign in 1918.

Every farm implement laid up for repairs in 1918 means just that much detracted from this production campaign.

Every minute lost when man-power is so short means that time is wasted.

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Dealer Must Make Himself

Says Sales Manager Thomas J. Toner to Maxwell-Chalmers Dealers

CHICAGO, Feb. 1—The old and so often discussed question of whether the dealer gets a square deal from the factory and whether short-term contracts are equitable received unexpected limelight last evening at the Maxwell-Chalmers dinner when Sales Manager Thomas J. Toner surprised some of those present by bringing up the subject himself.

Toner stated that it costs factories hundreds of thousands of dollars every year for re-contracting, and that it looks like an unnecessary expense. He said no dealer should have to worry about how long he is going to have an agency and that no factory should worry about how long it would have a dealer.

He said the dealer should be on a good basis and should be in such relationship that he could know that the only one who would lose his agency for him would be himself. The dealer should, he stated, be so sound financially and so well established and so good a business man and merchandiser that the factory would not have to worry about the continuation of the dealer. Changes, he said, are expensive.

Toner also stated that dealers must readjust themselves, that they must turn to trucks and tractors and round out their businesses, making their businesses more stable and taking advantage of the sales possibilities that are going to be grabbed by some one.

Hartford Auto Parts Elects Directors

HARTFORD, CONN., Feb. 3—At the annual meeting of the Hartford Auto Parts Co. last week the following directors were elected for one year: J. H. Trumbull, Trumbull Electric Co., Plainville, Conn.; C. C. Chamberlain, Blakeslee Forging Co., Plantsville, Conn.; H. H. Ensworth, L. L. Ensworth & Sons Co., Hartford; M. J. Unkelbach, Unkelbach & Perry, architects, New Britain, Conn.; J. M. Carney and H. W. Bigelow. Hartford Auto Parts Co. The old board of directors was re-elected at the meeting and the regular quarterly dividend of 1½ per cent, payable Feb. 15, was declared.

J. I. Case T. M. Co. Branch Managers Meet

RACINE, Feb. 4—The sixteenth annual branch managers' meeting of the J. I. Case T. M. Co. was held at the home office in Racine, Wis., Jan. 21 to 26. Thirty-one managers together with their assistants were in attendance from the various branches in both the States and Canada. Those in attendance were:

C. E. Kiser and W. W. Allen, Amarillo, Tex.; Owen J. Thomas and H. A. Caraway, Billings, Mont.; J. T. Atkinson and B. H. Tewksbury, Calgary, Can.; C. B. Shaw and H. B. Fountaine, Chicago; W. C. Lemmon and J. M. Green, Dallas; C. T. Bishop and C. F. Calame, Denver; J. H. Keegan and C. G. Pearse, Des Moines; August Hanson and Anton Jenson, Fargo; W. H. Burgess and J. A. Foreman, Indianapolis; W. C. Giberson and Geo. T. Coonley, Kansas City; F. E. Miller and E. A. Knight, Lansing; C. D. Wood and G. C. Work, Lincoln; C. M. Green and J. B. Kirby, Louisville; C. Lodine and R. E. Thomas, Madison; J. E. Gardner and George Heins, Minneapolis; J. E. Burk and V. H. Huck, Nashville; Ellis Chadwick and W. B. Scrimshire, Oklahoma City; J. C. Work and Wm. A. Sterling, Oshkosh; A. G. Kellam and M. O. Neal, Peoria; L. R. Denman and W. R. Wood, Portland; H. J. Quane, and C. V. Leslie, Regina, Can.; Ralph Steuard and J. Y. Owsley, Salt Lake City; Alvin Olson and L. A. Bloodworth, San Francisco; T. D. M. Osborne and F. R. Shultz, Saskatoon; G. P. Yount and G. W. Acklam, Sioux Falls; C. H. Metz and C. L. Russell, Spokane; W. S. Roberts and E. P. Burch, St. Louis; F. L. Allen and H. K. Kelch, Syracuse; C. H. Overlien and C. K. Fryer, Watertown, S. D.; J. H. Redden and L. J. Mumford, Winnipeg, and A. R. Hauschel of Odessa, Russia.

Moock Heads Denver Dealers

DENVER, Jan. 30—Secretary Harry G. Moock of the Rocky Mountain Auto Trades Association, has been appointed secretary also of the Denver Automobile Trades Association, with the added title of business manager of both bodies. This action was taken at a joint meeting of directors of the two organizations, following a meeting of the local directors to decide upon a successor for Secretary Edgar W. Johnson, who recently resigned to accept an important position beginning in February with the Norton-Buick Auto Co.

The plan of combining the office of secretary is to reduce the necessary rent and other office expenses, and also to save time in handling trade problems common to both Denver and the outside territory. New quarters have been leased at 1628 Broadway.

New York Representative for Hall

NEW YORK, Feb. 4—The R. D. King Motors Co. has been formed here to market Hall trucks and has opened headquarters in the Circle Building.

How Much Does It Cost to Drive-away Cars?

(*Continued from page* 51)

greater than this become unwieldy and the person in charge cannot give individual attention to the cars following.

It is certain that there is possibility for car abuse in conducting a drive-away, and this is decreased by decreasing the number of cars in any one instance.

The question of routes is a difficult one to solve, as this depends largely upon the time of the year and the condition of the roads. However, practically every car manufacturer has studied the overland outlets from his plant and provided route cards to almost any point. Dodge Brothers and Buick are notable examples of the above, and the others are following suit. The following are some of the typical routes:

On Page 51 are a few typical examples of drive-away routes both to the eastern and western parts of the country. A point that should be brought to mind is that it is often possible to ship part way by boat and drive the balance of the way; or else to first drive part way and then ship the remainder of the distance by freight. This latter procedure is possible because of the fact that freight car congestion is not so severe in many quarters as it is in Michigan.

The number of drive-aways during the coming season is bound to be greater than ever before, and the dealers are going to strike a certain amount of antagonism against cars delivered in this manner.

However, dealers that have been conducting drive-aways extensively during the past season state that this class of trade is greatly in the minority.

When it is a question of receiving a car thus delivered, or not at all, and the car so delivered is seen to be in good condition, the opposition quickly breaks down. And in the face of the fact that the drive-away method of delivery is a patriotic work, the dealer should plan to obtain his cars as much as possible by this means for the duration of the war.

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80,000 in Attendance at Milwaukee Show

And All There on Serious Business—Segregation of Passenger and Commercial Cars a Feature

MILWAUKEE, Feb. 2—The results obtained by Milwaukee distributers and dealers who exhibited at the tenth annual Milwaukee show, which was held at the Auditorium from Jan. 16 to 26, inclusive, were much more favorable than had been anticipated, in view of the abnormal conditions under which all business is obliged to pursue its course.

The total attendance for the 10 days was approximately 80,000, compared with 70,259 admissions at the 7-day combination show held in January, 1917. It is estimated that 50,000 saw the passenger car section and 30,000 inspected the truck show.

The admission fee to the passenger car show was 50 cents, and each required the payment of a 5-cent war tax. Admission to the truck show was by card only, but no admission fee proper was charged. Exhibitors were furnished with a liberal supply of cards, upon which they wrote the name of the person to whom each was issued. It was an easy matter for the exhibitor to check up on responses to his invitation by looking over the returns coming to the gates. The plan of segregating passenger and commercial car displays, which was born of necessity, proved to be a great success in every way.

Obtain Prospect List

Exhibitors in the passenger car section report that through this medium they have obtained a list of prospects that will approach more closely to a "100 per cent" mark of purchases than at any previous show. The reason undoubtedly is that those who attended came there for serious business and not merely to fill a social obligation or to "see the sights."

There was a new visitor this year. He was the man who two, three or four years ago was working for $2.50 to $3 a day and to-day is earning $5 to $7 a day—of 8 hours. This visitor had not attended previous shows because he was not a buyer of motor cars in former days. To-day he and his fellows in like improved financial circumstances are probably the best and most numerous prospects available to the Milwaukee dealer.

The Milwaukee show, like others, is not a grand retail selling proposition in the meaning that exhibitors do nothing but sit at their desks or tables in exhibit booths and take orders and the cash. Nevertheless, a fair number of cars actually are sold on the floor, to the extent of signed orders.

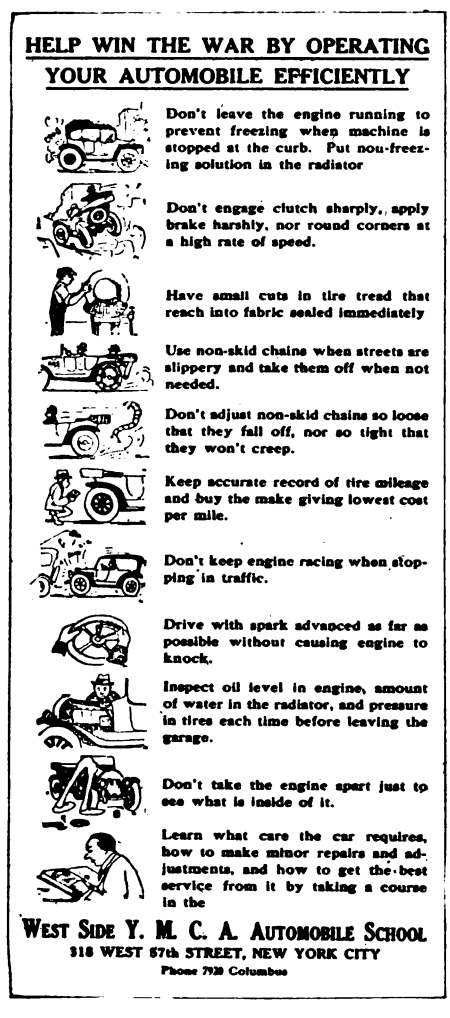
Exceptional opportunity was afforded dealers this year to demonstrate the utility of passenger cars under extreme conditions by the fact that just prior to the opening of the show a great blizzard struck Milwaukee, supplementing two lesser snowstorms.

Accessory and supply dealers exhibiting at the show expressed themselves as gratified over results.

The truck show occupied about 90 per cent of the space used by the passenger car exhibition. On the night from Wednesday until Thursday morning at 10:30 o'clock the passenger car show was moved completely out of the building and the commercial car exhibits installed. It was a remarkable transformation made in record-breaking time.

The attendance at the truck show was "hand-picked." There was no admission charge, but entrance could be gained only with a card of credential from an exhibitor. Thus those who came were men known to be vitally interested in commercial vehicles. Unlike the passenger car show, many sales actually were made on the floor. Dealers in delivery car attachments for old passenger car chassis did a land-office business. The interest of visitors surprised everyone.

Henceforth Milwaukee shows will be continued in two distinct sections, the experiment this year having been a thorough-going success. And, in addition, there is not a distributer or dealer in passenger or commercial cars, accessories, etc., who would have remained out of the show for any amount of money.



Leaflet sent out by Y. M. C. A. Automobile School

May Make License Law State Wide

New York Executives Favor Amendments Regulating Traffic and Use of Anti-Glare Device

ALBANY, N. Y., Feb. 4—Legislation making applicable to motorists throughout New York State the provisions of the Kelly-Cromwell law requiring all persons who drive motor vehicles in New York City to be licensed, and amendments to the headlight law empowering the Secretary of State to declare whether various anti-glare headlight devices comply with the law, have been approved at a conference on traffic and automobile regulation at the headquarters of the New York State Conference of Mayors at Albany.

The conference approved two amendments to the general highway traffic law. The first provides that unless otherwise directed by a traffic officer, or police sign, when a trolley car is stopped or running, a vehicle traveling in the same direction must not pass to the left of the car. This does not apply, however, when one or more tracks are on the side of a highway. While this is the intent of the present law it is not so clearly stated. The other amendment limits the prohibition against the use of gongs, sirens and whistles to those generally adapted for use on fire department apparatus. Both amendments have already been introduced by Assemblyman Welsh of Albany in the Assembly and Senator Knight of Wyoming county.

Amendments to the motor vehicle law were approved favoring a speed regulation for cities and villages of more than 300 inhabitants, prohibiting a speed of 25 miles an hour and declaring a rate of not exceeding 15 miles an hour to be regarded as "a safe rate of speed."

The conference agreed that no effort should be made this year to obtain the passage of legislation regulating pedestrians. The State Conference of Mayors was requested to draft a model code of ordinances regulating pedestrians and recommend its adoption by the cities of the state.

Emil Grossman Corp. Not Affected

Editor Motor World: Please publish the following announcement relating to the Government taking over the Bush Terminal property in South Brooklyn: "Announcement has been made in the daily press that the Government has taken over the Bush Terminal property in South Brooklyn. Inasmuch as we are located in Bush Terminal Building No. 20 a number of our customers have asked us in what way this will affect our business. We wish to state that the Government has only taken over the Bush docks and warehouse buildings. This does not in any way affect the industrial building in which we are located. We will be in a position to make prompt shipments."—Emil Grossman Mfg. Corp., Brooklyn, N. Y.

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Your Responsibility

TO win this war we must do things; do them quickly, with less man power, with less waste. It means increased activity per individual and increased activity for each piece of equipment.

We are not attaining maximum activity. We are not using each piece of equipment to its utmost extent.

The great arteries of transportation are overburdened, and not all the efficient control by the Government, nor the wisdom of the railroad men can enable these arteries of transportation to carry all the material and goods which are offered to them.

The motor car and truck are the most flexible means of transportation. They can go where railroads cannot go. They can be used with ease in one direction or another to relieve temporary congestion. They can be employed more effectively, and offer a much larger tonnage of movement.

Every dealer in every city in the United States engaged in the automotive business has a responsibility reaching much further than the sale of his goods.

Intimately acquainted with the practicable possibilities of the motor car and truck, he can, by study of the local situation and necessities of local transportation conditions, become a center of constructive planning and co-operation, so that relief measures can be promptly applied.

Unless we do it, the Government must do it, without the knowledge of local conditions which are necessary to a proper solution.

All it needs is thought, planning, getting together of the local business men and operating.

It is up to us to lead the way in constructive measures for relief.

Fuel Situation Critical in Detroit

DETROIT, Feb. 5—The fuel situation is becoming more critical every day. The Maxwell, Paige, Chalmers and Studebaker factories will have to close to-day unless a supply of coal arrives. The Lincoln Motor Co., which is making Liberty engines, has enough coal to last 7 days, the Ford Motor Co. enough for 13 days and the Packard Motor Car Co. has 10 days' supply. Many homes in Detroit are without fuel and the weather is below zero. The gas company has coal for only a few weeks. If no relief comes before that time every engine testing department, enameling oven and all other work depending on gas will have to be stopped.

Toback Heads Redden

CHICAGO, Feb. 5—Samuel S. Toback, who quite recently was appointed general manager of the Redden Motor Truck Co., has been elected to the presidency of the company.

Chicago Salon Reflects Optimism

CHICAGO, Feb. 5—Chicago's salon in the Elizabethan room of the Congress Hotel reflects the same spirit of optimism that is noticeable at the Coliseum, and between fifty and sixty cars were sold. The attendance this year was better than in 1917. The salon exceeded all expectations in the number of visitors as well as the amount of business done. The Elizabethan room permitted the exhibition of only 20 cars, as against 80 in New York. Unless war conditions make it impossible, space next year will be doubled or tripled.

MacFarland Heads Denver Civic Body

DENVER, Jan. 26—For the first time in the history of Colorado's capital, a representative of the motor car industry has been chosen president of the Denver Civic and Commercial Association. That honor was conferred this week upon Finlay L. MacFarland, president of the MacFarland Auto Co., Buick distributer for Colorado and Wyoming. MacFarland's standing in the motor industry has also won national recognition, and he has just been appointed to represent the Rocky Mountain territory as a member of the United States War Industry Board at Washington. He will there be one of fifteen business men to serve in handling the problems of motor car distribution during the war.

Detroit Short of Gas

DETROIT, Feb. 3—Betwen 8000 and 10,000 men had to be laid off Saturday temporarily by a score of manufacturing concerns engaged in war work owing to a shortage of gas. Conditions are so acute that unless the gas company receives the needed coal and gas within the next 36 hours, 100,000 or more workers will be compelled to remain idle, as nearly all the local plants are short. At the Ford Motor Co. about 4000 men were laid off Saturday.

Duesenberg Buys Fiat Plant

NEW YORK, Feb. 5—The Duesenberg Motors Corp., Elizabeth, N. J., has purchased the buildings and equipment of the Fiat Co., Poughkeepsie, N. Y., and will commence immediately the removal of the bulk of the equipment to its Elizabeth plant. The Fiat company will continue to occupy a part of the buildings and the production and assembly of Fiat cars will go on much as usual.

The Duesenberg company has purchased this property and equipment in order that it might obtain immediately a large amount of machinery with which to carry on the production of airplane engines for the Government. At the present time Duesenberg is concentrating its entire manufacturing facilities on the production of Bugatti airplane engines for which it has a large contract. The production of Duesenberg engines has been entirely stopped though at some future time arrangements may be made with some western engine builder to manufacture the small four Duesenberg.

The Fiat company states that it has no intention of stopping the manufacture of cars and that this work will be carried on immediately with but little interruption.

Pennsylvania Farmers Own 19 Per Cent

HARRISBURG, PA., Feb. 4—Nineteen per cent or 58,766 of the 306,001 pneumatic-tired motor cars licensed in Pennsylvania during the past year are owned by farmers. These figures, just announced by the Pennsylvania Department of Agriculture, show that 27 per cent of the farmers of the state possess cars and that during 1917 the sales in the rural districts increased fifty per cent over the previous year. In some districts as high as forty and forty-five per cent of the farmers own cars. Two years ago there were about 20,000 automobiles owned by farmers, a year ago 30,700 and this year starts off with close to 60,000.

These cars are used for farm business during the day and for family jaunts at night or on holidays and Sundays. At the same time the farmers own 4435 motor trucks as compared with 2100 a year ago.

Canton Garages Organize

CANTON, ILL., Feb. 6—Garage owners met this week and organized the Canton Garage Men's Association, electing officers as follows: President, A. R. Street; secretary, J. T. Jelley; treasurer, M. McCatchey.

Copper County Show April 17 to 20

CALUMET, MICH., Jan. 5—The Copper County Automobile Dealers and Garage Owners' Association will hold its annual Upper Peninsula automobile show in the Colosseum from April 17 to 20.

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More Dealers Adopt Strictly Cash Basis

Both Calumet County and Pueblo Associations Banish Old-Fashioned Open Accounts

CHILTON, WIS., Feb. 4—The Calumet County Automobile Dealers' Association was formed at a meeting of the owners of fourteen garages at Hilbert, Wis., with these officers: President, Harry Hass, New Holstein; secretary, Wilmer E. Bishop, Hilbert; treasurer, Robert Hippe, Chilton. The association adopted the following rules to govern all members:

1. Hours for doing repair work to be from 7 a. m. to 6 p. m. Workshops close at 6 p. m., and garages at 9.30 p. m.
2. All garages to remain closed on Sundays, excepting in an emergency case of breakdown or accident.
3. Charges for expert repair work, 75c. per hour; helpers, according to ability. Time and a half will be charged for overtime and Sunday work.
4. Towing charges: $1 for first mile; 75c. for second mile, and 50c. for each mile thereafter.
5. Charges for burning out carbon from cylinders, 75c. per cylinder.
6. Storage charges, 50c. per night or day; regularly monthly charges, $2.50 to $5.
7. Storage battery recharging, minimum, $1 for single refill; winter storage, 50c. per month.
8. All repair work must be settled for before cars leave garage.

The agreement is signed by the following named concerns:

Hippe Motor Car Co., Chilton; John Binsfeld, Chilton; Halefrich Auto Supply Co., Reedsville; Meili-Blumberg Co., New Holstein; George Duchow, Potter; New Holstein Motor Car Co., New Holstein; Auto Sales Co., Hilbert; Hilbert Auto Co., Hilbert; Piepenburg & Aeubert, Reedsville; Hinges & Son, Kiel; Brillion Auto Co., Brillion; Fred Thiessen, Kiel; Calumet Auto Co., Brillion; Steffes & Steffes, Chilton.

Pueblo Association On a Cash Basis

PUEBLO, COL., Feb. 1—The Auto Trades Association of Pueblo has from this date gone on a strictly cash basis except for out of town business, where customers are given sufficient time to audit and voucher their accounts. A clearing house has been established where dealers may purchase coupon books for cash. These are sold to customers for cash and the coupons are accepted at any garage, supply house, gasoline station or shop. Plans are being made to extend the system throughout the state.

The association has just completed its first year. Twenty-two members formed the nucleus of the organization and, while no attempt was made to bring about all needed reforms at once, it was found that differences adjusted themselves automatically as soon as the dealers become better acquainted, and a good co-operative spirit now exists.

Patriotic work has been an important feature of the association's activities. The Automobile Committee of the Liberty Loan booked $15,000 in subscriptions. A fund for Christmas gifts for our soldiers overseas was started through a dance held in the new Ford garage and resulted in the purchase and forwarding of 1015 packages to France at a cost of $1,810. In November another entertainment provided an ambulance for the local Red Cross Chapter, together with a fund for oil, gasoline, tires and storage for one year.

Altogether the association is decidedly up and doing, and is already one of the most active of its kind in the West.

License Fuel Oil Dealers

WASHINGTON, Feb. 5—Manufacturers and distributers of fuel oil with gross sales of more than 100,000 barrels a year after Feb. 11 must obtain Federal licenses to do business. Although there is an abundant supply of oil, transportation difficulties have made such action necessary and President Wilson has taken this step. The distribution of fuel oil is to be under the direction of the oil division of the Fuel Administration headed by Mark L. Requa. There is no intention to extend this emergency measure to cover gasoline and kerosene which are not included under the term fuel oil.

Coincident with the President's proclamation Fuel Administrator Garfield has made public the following list which will govern priority of deliveries:

1—Railroads and bunker fuel.
2—Export deliveries or shipments for the U. S. army or navy.
3—Export shipments for allied navies and other war purposes.
4—Hospitals where oil is used for fuel.
5—Public utilities and domestic consumers now using oil (including gas oil).
6—Shipyards engaged in government work.
7—Navy yards.
8—Arsenals.
9—Plants engaged in manufacture, production and storage of food products.
10—Army and navy cantonments where oil is now used as fuel.
11—Industrial consumers engaged in munition manufacture and other articles under government orders.
12—All other classes.

More Trucks Than Ever At Motor Car Shows

Bigger Space Being Given Merchandise Movers—Many Shows to Have Them First Time

Trucks and tractors this year are forming a very important feature of motor car exhibits throughout the country—just how important is indicated by statistics gathered by Motor World from the managers of the principal current automobile shows.

The space allotted to commercial vehicles is much greater than ever before; in some cases two, three and even four times as great, and in one instance, where 20,000 sq. ft. of total floor area is devoted to this class, the tractors alone occupy eight times their last year's allotment.

Not content with this encouraging recognition by the big show authorities several commercial vehicle dealers are holding shows of their own. Two of these have already taken place in Milwaukee and Des Moines, and Bridgeport will hold another beginning March 25. That at Milwaukee occupied 40,000 sq. ft., four times as much as last year.

The Cleveland and Lancaster, Pa., shows included trucks and tractors this year for the first time, the manager having seen the trend of the times and the success of such a course at other shows. At Wilmington, Del., lack of space alone prevented the inclusion of the commercial vehicle with the passenger car. Doubtless next year steps will be taken to provide additional accommodations.

It is certain that the public interest in the exclusively utilitarian side of the motor industry is bringing about revolutionary changes in show ideas. We no longer speak of a pleasure car. The passenger car is a necessity. The truck and the tractor are at the very foundation of modern industry.

Shows That Have Truck Exhibits

Place	*Space*	*Increase over last year*
Boston, Feb. 27-March 6	60,000 sq. ft	Same.
Detroit, Jan. 19-26	One-third of show, 25,000 sq. ft	25%
San Francisco, Feb. 16-24	25,000 sq. ft. Separate building	
Cleveland, Jan. 19-27		First time shown.
Newark, N. J., Feb. 16-21	One-third total space, main floor	
Minneapolis, Minn., Feb. 2-9	20,000 sq. ft. main floor	Trucks, 20%
Oklahoma City, Jan. 22-26	One-fourth total space	
Portland, Ore., Jan. 21-26	20,000 sq. ft	Same Tractor 800%
San Joaquin	One-fourth total space	12½%
York, Pa., Jan. 21-26	10 per cent total space	Same
Harrisburg, Jan. 26-Feb. 2	10 per cent total space	
Syracuse, N. Y., Feb. 18-23	One-fourth total space, main floor	50%
Providence, Jan. 11-19	One floor	
Lancaster, Pa., Feb. 6-9	Part of one floor	First time shown.
Trenton, N. J., March 20-29	10 per cent of space	
Rochester, Jan. 14-19	One-fourth total space	
Kalamazoo, Jan.	One-fourth total space	50%
Omaha, Feb. 23-March 2	One floor	50%
Buffalo, Jan. 21-26	A few trucks only A few trucks only Exhibited by members of association who handle no passenger cars.	
Milwaukee, Jan. 23-25	40,000 sq. ft	400%
Des Moines, Jan. 18-24	30 trucks	+
Bridgeport, March 25	10,000 sq. ft	100%

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Frank B. Willis has resigned from the presidency of the Hal Motor Car Co., Cleveland. Reasons for his resignation have not been made public, nor has he disclosed his future plans.

A. P. Warner, president of the Warner Lens Co., Chicago, was elected president of the Bailey Non-Stall Differential Corp., Chicago, at the annual meeting held here to-day. George D. aBiley was elected vice-president, J. E. Duffield, general manager and treasurer, and C. E. Ferguson, secretary. Besides the officers, A. D. Lasker and George Stroh, Jr., are members of the board of directors.

V. I. Shope has been made sales and advertising manager of the Zenith Carbureter Co., succeeding A. H. Doolittle, recently resigned. Shope was formerly New York branch manager.

R. M. Hernandez, for ten years with the United States Tire Co. in the Central States District, has been appointed Central District Manager of he Carlisle Cord Tire Co., Inc. His headquarters will be at Chicago.

H. G. Ault has been named by the General Tire & Rubber Co., Akron, to head its reorganized sales department covering tire accessories and repair materials. Ault has been connected in a similar capacity with the Firestone Tire & Rubber Co.

C. W. Whitston has joined the sales force of the Fulton Motor Truck Co., with headquarters in Chicago. Immediately after the Chicago show he will be assigned to the position of district sales manager.

W. H. Oliver, Jr., is now connected with the Taft-Pierce Mfg. Co., Woonsocket, R. I. He was formerly chief engineer of the Hyatt Roller Bearing Co. and recently with the Russel Motor Axle Co.

Z. K. Carson has been appointed Salesmanager of the Gray-Dort Co. of Chatham, Ont.

W. B. Cochrane has been appointed Pacific coast sales manager for the United States Motor Truck Co., Cincinnati. Cochrane was formerly with the Haynes Automobile Co. and the General Motors Truck Co.

Ralph C. Smith has resigned as Eastern sales manager of the Reo Motor Car Co. to become sales manager of the Anderson Tire Mfg. Co., Washington, D. C.

William D. Paine, York, Pa., who has been Eastern district sales manager for the Saxon Motor Car Co. for the last ten months, has been commissioned a captain in the Ordnance Officers' Reserve Corps, and is awaiting his call to active service.

William M. Crotty, for seven years manager of the Chicago branch of the New York Lubricating Oil Co., has been appointed sales manager of the motor oil department of the Continental Oil Products Co., Chicago.

A. A. Lightfoot has been promoted from the position of Pennsylvania representative of the Marathon Tire & Rubber Co. to that of division manager at Chicago. He succeeds H. F. Smith, who has resigned.

H. F. Harris has resigned as assistant branch manager of Willys-Overland, Inc., New York, and on Feb. 15 will become industrial engineer of the Republic Motor Truck Co., Alma, Mich.

George K. Parsons has been appointed manager of the new Detroit branch factory of L. V. Flechter & Co., and will have charge of all factory sales. He was formerly national distributor of the Disco Self-Starter Corp. and connected with the sales organization of the Ford Motor Co.

C. E. MacConnell has been appointed sales representative of the Hyatt Roller Bearing Co., Detroit. He was formerly advertising manager of the Detroit branch of the Goodrich Rubber Co.

W. L. Walls has been appointed sales manager of the King Motor Sales Co., Detroit, succeeding C. J. Welch, who recently resigned. He was formerly district manager for the company in Michigan.

Tom Orr, former racing driver for the Maxwell Motor Co., Inc., and until recently a member of its truck sales department, has been commissioned a captain in the tractor division of the ordnance reserve corps.

O. R. Hardwell, former advertising manager of the Chalmers Motor Co., Detroit, now has the Iowa territory for the Willys-Overland Co., which he represents as special sales representative.

A. G. Dale has been appointed western sales manager of the King Motor Car Co., Detroit.

G. F. Knowles, sales engineer of the Federal Motor Truck Co., Detroit, is leaving for Washington, D. C., where he will handle sales engineering and all national business with the government for the Federal company for the duration of the war.

V. K. McBride, former assistant sales manager of the Federal Motor Truck Co., Detroit, has been appointed a captain in the ordnance department at Washington.

Thomas S. Watson, president of the Thomas S. Watson Co., consulting engineer and electrical expert, Milwaukee, has been commissioned a major in the ordnance officers' reserve corps and left for Washington last week to engage in active duty. Maj. Watson came to Milwaukee from Spokane, Wash., in 1900 and became electrical engineer of the Mechanical Appliance Co. Later he organized the Watson company. During the last two years he occupied an important advisory and consulting position with the Link Belt Co., Chicago, Philadelphia and Indianapolis.

Maj. Frank R. Bacon, Milwaukee, president of the Cutler-Hammer Mfg. Co., who several months ago was called to active duty in the ordnance officers' reserve corps and placed in charge of the New Haven (Conn.) district, has been transferred to Washington, D. C.

William H. Alexander, assistant general manager of the Marvel Carburetor Co., Flint, Mich., who was in charge of experimental work in the engineering department, has been called to serve in the aviation section of the signal corp.

Jobbers Would Omit One Spark Plug Size

Bank Standardization Committee Suggests Names and Would Drop the 3-4-In. Type

CHICAGO, Feb. 1—The Standardization Committee of the National Association of Automobile Accessory Jobbers is endeavoring to improve the situation in the field of spark plug manufacture. It held a meeting here this week at which standard names for types were advocated in a council of Champion, Rajah, Grossman, A. C., Bethlehem, and Splitdorf plug makers. F. T. Andrae, Milwaukee, is chairman of the committee.

Instead of saying "standard" or "regular," the committee recommends the use of the word "regular." Instead of "extension" the terms "long" and "extra long" are recommended.

The committee also has in hand the matter of eliminating if possible the use of a ¾-in. size. It is stated that this is used in some motors and an investigation is to be conducted to see if fewer sizes will not suffice. The principal sizes otherwise are the "regular," "long" and "extra long" in ½-in., ⅞-in. and metric sizes. The retention of the metric size is recommended as a step toward securing after-war business abroad. The ¾-in. plug is said to be used mostly in farm implement and tractor trades.

Case Has New Branch Managers

RACINE, Feb. 4—The J. I. Case T. M. Co. has appointed five new branch house managers. J. H. Keegan, who for the past 12 years has been branch manager at Chicago, will assume control of the Des Moines, Iowa, branch. C. B. Shaw will take charge of the Chicago branch. C. E. Kiser will assume the duties of branch manager at Amarillo, Tex. W. H. Burgess has been advanced to branch manager at Indianapolis. C. T. Bishop is now branch manager at Denver.

Motor Security Quotations

	Bid	Asked
*Ajax Rubber Co.	46	55
*J. I. Case T. M. Co., pfd.	77	81
Chalmers Motor Co., com.	3	5
Chalmers Motor Co., pfd.	25	40
*Chandler Motor Co.	82	83
Chevrolet Motor Co.	119	121
*Fisher Body Corp., com.	26	35
*Fisher Body Corp., pfd.	80	87
Fisk Rubber Co., com.	49	51
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2nd pfd.	60	70
Firestone Tire & Rub. Co., com.	95	98
Firestone Tire & Rub. Co., pfd.	95	97
*General Motors Co., com.	134½	136½
*General Motors Co., pfd.	85	89
*B. F. Goodrich Co., com.	47	49
*B. F. Goodrich Co., pfd.	97	100
Goodyear Tire & Rub. Co., com.	132	136
Goodyear Tire & Rub. Co., pfd.	97	100
Grant Motor Car Corp.	2	3
Hupp Motor Car Corp., com.	2¾	3
Hupp Motor Car Corp., pfd.	75	80
International Motor Co., com.	14	17
International Motor Co., 1st pfd.	40	45
International Motor Co., 2nd pfd.	14	17
*Kelly-Springfield Tire Co., com.	46	47
*Kelly-Sp'gfield Tire Co., 1st pfd.	75	80½
*Lee Rubber & Tire Corp.	14	15
*Maxwell Motor Co., Inc., com.	28	29
*Maxwell Motor Co., Inc., 1st pfd.	60	61
*Maxwell Motor Co., Inc., 2d pfd.	22	28
Miller Rubber Co., com.	129	134
Miller Rubber Co., pfd.	95	96
Packard Motor Car Co., com.	85	90
Packard Motor Co., pfd.	91	94
Paige-Detroit Motor Car Co.	16	18
Peerless Truck & Motor Corp.	16	17
Portage Rubber Co., com.	108	112
Regal Motor Car Co., pfd.	..	23
†Reo Motor Car Co.	16	18
*Saxon Motor Car Corp.	9½	11
Springfield Body Corp., com.	..	..
Springfield Body Corp., pfd.	..	..
Standard Motor Construction Co.	9	11
Standard Parts Co.	72	80
*Stewart-Warner Speed Corp.	51	52
*Studebaker Corp., com.	53	54
*Studebaker Corp., pfd.	91½	97
Swinehart Tire & Rubber Co.	35	40
United Motors Corp.	25	25¼
*U. S. Rubber Co., com.	57	58
*U. S. Rubber Co., pfd.	98	101
*White Motor Co.	41	42
*Willys-Overland Co., com.	18¼	19
*Willys-Overland Co., pfd.	78	79½

*At close Feb. 2, 1918. Listed N. Y. Stock Exchange.
†Par value $10.

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Coming—THE SHOW CALENDAR—*Events*

Is YOUR Show Listed? Send Us the Dates

Tulsa, Okla.	Tulsa Automobile Dealers' Assn.	February
Peoria, Ill.	Peoria Auto Accessories Dealers' Assn. W. O. Ireland, Mgr.	February
Kalamazoo, Mich.	Kalamazoo Automobile Dealers' Assn., Armory.	Feb. 5-9
Bronx, N. Y.	Bronx Auto. Dealers' Assn., Second Battery Armory. D. J. Barrett, Chairman Show Committee.	Feb. 9-16
Binghamton, N. Y.	Binghamton Automobile Dealers' Ass'n, Malurah Temple. William M. McNulty, Mgr.	Feb. 5-9
Lancaster, Pa.	Automobile Trade Assn., Fidelity Bldg. R. W. Shreiner, Mgr.	Feb. 6-9
Portland, Ore.	Portland Automobile Trade Assn. Auditorium. M. O. Wilkins, Mgr.	Feb. 7-13
Kansas City, Mo.	Kansas City Motor Car Dealers' Assn., Convention Hall. E. E. Peake, Mgr.	Feb. 11-16
Elmira, N. Y.	Elmira Automobile Club. State Armory.	Feb. 11-16
Kansas City, Mo.	Third Annual Tractor, Kansas City Tractor Club.	Feb. 11-16
St. Louis, Mo.	St. Louis Auto Mfgrs. & Dealers' Assn. Robert E. Lee, Mgr.	Feb. 18-23
Toledo, O.	Toledo Auto Shows Co., Terminal Bldg. H. V. Buelow, Mgr.	Feb. 11-17
Ft. Wayne, Ind.	Automobile Trade Assn., Concordia Gymnasium.	Feb. 13-16
Hartford, Conn.	Hartford Auto Dealers' Assn., State Armory. Benjamin F. Smith, Mgr.	Feb. 16-23
Newark, N. J.	N. J. Auto. Exhibition Co., First Regiment Armory. Claude E. Holgate, Mgr.	Feb. 16-23
Albany, N. Y.	Albany Auto Dealers' Assn., State Armory.	Feb. 16-23
San Francisco, Cal.	San Francisco Dealers' Assn., Exposition Auditorium. G. A. Wahlgreen, Mgr.	Feb. 16-24
Waterbury, Conn.	United Shows Co.	Feb. 18-23
Syracuse, N. Y.	Syracuse Automobile Dealers' Assn., State Armory. Harry T. Gardner, Mgr.	Feb. 18-23
Grand Rapids, Mich.	Automobile Business Assn., Klingman Building. Ernest T. Conlon, Mgr.	Feb. 18-23
Duluth, Minn.	Duluth Auto. Trade Assn., Armory. John J. Lane, Mgr.	Feb. 18-23
Springfield, O.	Springfield Auto Trades Assn., Memorial Hall. C. S. Burke, Mgr.	Feb. 18-23
Pittsfield, Mass.	State Guard, State Armory. James J. Callagan, Mgr.	Feb. 18-23
Nashville, Tenn.	Nashville Auto Trade Assn., Hippodrome. Henry B. Marks, Mgr.	Feb. 18-23
Des Moines, Ia.	Ninth Annual Pessenger and Second Annual Truck, Des Moines Automobile Dealers' Assn., Coliseum. C. G. Van Vliet and Dean Schooler, Mgrs.	Feb. 18-24
So. Bethlehem, Pa.	Fourth Annual (cars 18-23; trucks 25-27), Coliseum. J. L. Elliot, Mgr.	Feb. 18-27
Quincy, Ill.	First Annual, Armory. L. B. Bartlett, Mgr.	Feb. 20-27
Brooklyn, N. Y.	Brooklyn Motor Vehicle Dealers' Assn., 23d Regiment Armory. I. C. Kirkham, Mgr. Passenger Cars, Trucks.	Feb.23-Mar.2 Mar. 5-9
Muskegon, Mich.	Second Annual, Merril Auditorium. John C. Fowler, Mgr.	Feb. 25-Mar. 2
Columbus, O.	Columbus Auto Show Co., W. W. Freeman, Mgr.	Feb. 27-Mar. 2
Burlington, Ia.	Cars, trucks and accessories	Feb. 27-Mar. 2
Boston, Mass.	Salon, Boston Automobile Dealers' Assn., Copley Plaza Hotel. Chester I. Campbell, Mgr.	Feb. 27-Mar. 6
Omaha, Neb.	Omaha Auto. Trade Assn., Auditorium. Clarke G. Powell, Mgr.	Feb. 23-Mar. 2
Lyons, France	Third Sample Fair	Mar. 1-15
Pittsburgh, Pa.	Automobile Dealers' Assn. of Pittsburgh, Motor Square Garden. John J. Bell, Mgr.	Mar. 2-9
Boston	Boston Automobile Dealers' Association, Mechanics Building. Chester I. Campbell, Mgr.	Mar. 2-9
Utica, N. Y.	Utica Motor Dealers' Assn., State Armory. W. W. Garabant, Mgr.	Mar. 4-9
Clinton, Ia.	Clinton Automobile Dealers' Ass'n, Coliseum.	Mar. 6-9
Raleigh, N. C.	Auditorium. John Kelley, Mgr.	Mar. 6-9
Mason City, Ia.	Annual Car and Truck, Automobile Dealers' Assn.	Mar. 6-9
St. Joseph	St. Joseph Automobile Dealers' Assn., Auditorium. John Albus, Mgr.	Mar. 6-9
Watertown, N. Y.	Automobile Dealers, Inc., State Armory. Arthur E. Sherwood, Mgr.	Mar. 6-9
Green Bay, Wis.	Brown County Automobile Trade Assn.	Mar. 8-11
Cedar Rapids, Ia.	Cedar Rapids Auto. Trade Assn. Auditorium.	Mar. 11-16
Fargo, N. D.	Gate City Auto. Show Co., Auditorium. J. W. Murphy, Mgr.	Mar. 12-15
Fort Fairfield, Me.	Reed's Garage. R. F. Reed, Mgr.	Mar. 14-16
Great Falls, Mont.	Montana Automobile Distributers Assn., Lexington Garage. A. J. Breitenstein, Mgr.	Mar. 15-20
Vancouver, B. C.	Western Canada Automobile Show Assn., Horse Show Bldg. D. A. Hamilton, Mgr.	Mar. 19-23
San Francisco, Cal.	Motor Truck Dealers of San Francisco, Auditorium. Ivan R. Gates.	Mar. 19-24
Houlton, Me.	Second Annual, Houlton Motor Car Dealers' Assn., Bangor St. Exhibition Hall. J. D. Luth, Mgr.	Mar. 20-22
Holdredge, Neb.	Second Annual of Southwest Nebraska.	Mar. 20-23
Trenton, N. J.	Trenton Auto Trade Assn., Second Regiment Armory. John L. Brock, Mgr.	Mar. 20-23
Bridgeport, Conn.	Sixth Annual Cars and Trucks. Fourth Regiment Conn. Home State Guard, State Armory and Casino. B. B. Steiber, Mgr.	Mar. 25-30
Atlantic City, N. J.	Second Annual, Garden Pier. W. W. Garabant, Mgr.	Mar. 30-Apr. 6
Hartford, Conn.	Hartford Automobile Dealers' Assn., State Armory. B. F. Smith, Mgr.	Mar. 30-Apr. 6
Red Bank, N. J.	Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr.	Apr. 6-13
Stockton, Cal.	Third Annual San Joaquin Auto Trade Assn. Samuel S. Cohn, Mgr.	Apr. 9-13
Calumet, Mich.	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-20

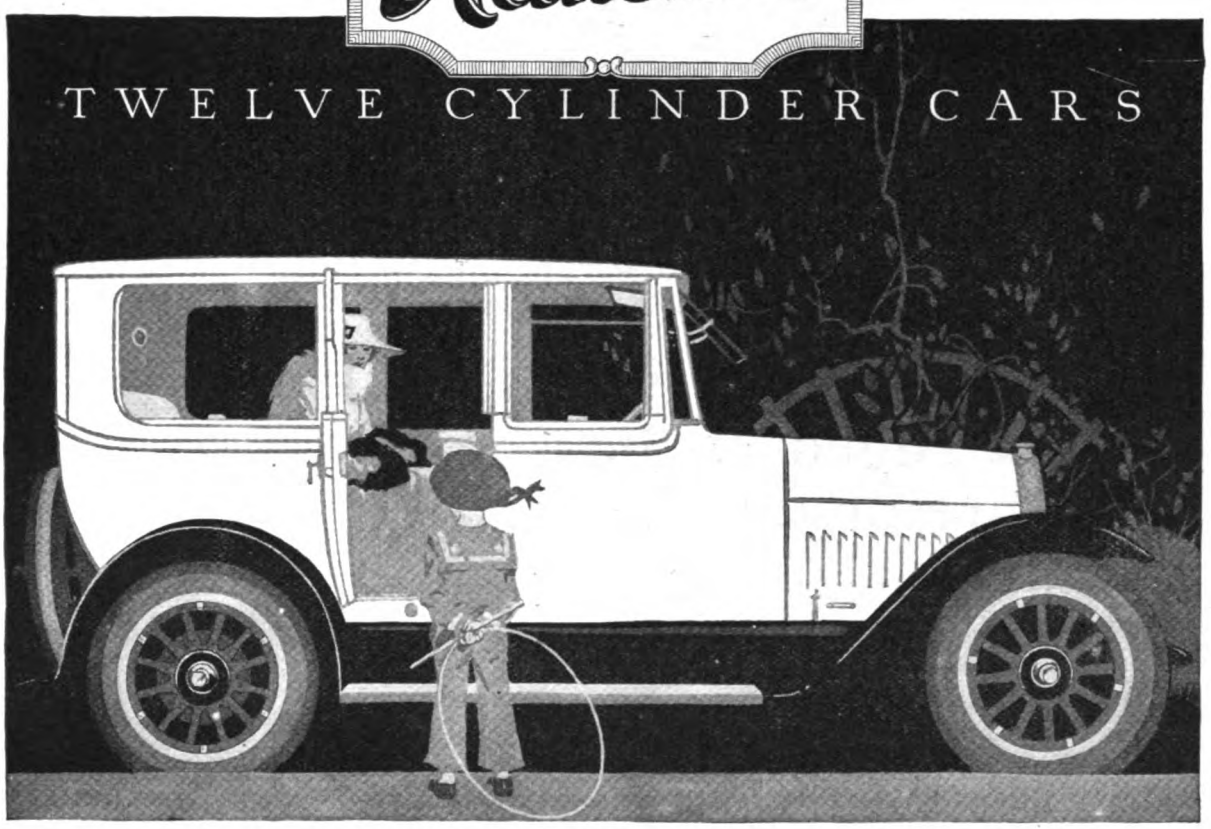
Conventions

Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers.	June 5-12

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National

TWELVE CYLINDER CARS



STAMINA THAT IS ECONOMY

THE immediate success met by this new twelve-cylinder National Touring Sedan constitutes a splendid recognition of the fact that true war-time economy is a matter of efficiency.

No more would we think of limiting the strength, the ability, or the convenience of this practical traveler than we would of suggesting that the equipment of our troops overseas be curtailed.

These times test the soundness of every man's economy-doctrine, and they emphasize the wisdom of the dealer who sells and of the customer who buys this car in which stamina is the source of important savings.

With either the six- or twelve-cylinder airplane-type engine, it is a trustworthy car for all purposes; staunchly built to meet the exactions of shrewd judges and of long, varied service.

Its fuel, tire, and maintenance costs are surprisingly low.

The versatility of the carriage of this National, easily closed for winter or opened for summer, is enjoyed without sacrifice of touring range.

It affords the advantages of a cold weather equipage and of a warm weather tourist at the cost of one car.

The new National spreads its inherent utility and economy over the entire year and thus, from its initial cost, it yields the utmost in service-value.

Behind these economy-facts the prosperity of National dealers is firmly entrenched.

NATIONAL MOTOR CAR & VEHICLE CORPORATION - INDIANAPOLIS

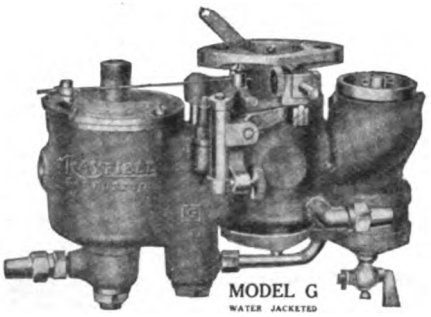
Eighteenth Successful Year

National Dealers Now Offer Complete Range of Body Styles in Both

Six and Twelve Cylinder Models

7-Passenger Touring Car, 4-Passenger Sport Phaeton
4-Passenger Roadster, 7-Passenger Convertible Sedan

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THE Rayfield is acknowledged to be the best carburetor on the market today.

It is best for all makes of cars.

It is best with all grades of fuel.

It is best in all kinds of weather.

Severe winter driving demonstrates Rayfield superiority. Poor carburetors are at their worst during zero spells.

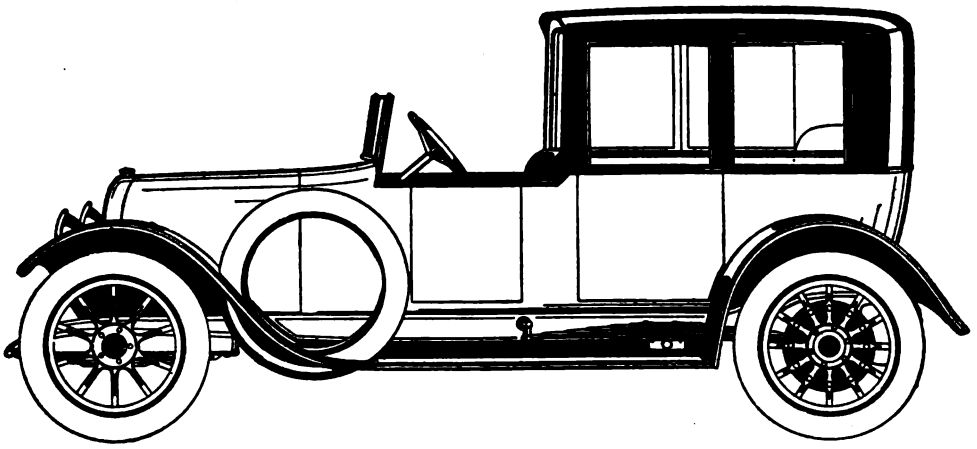
Naturally, the Rayfield sells easiest during cold months.

Don't miss this opportunity the weatherman has brought you. Write us *now* for special proposition to dealers.

Findeisen & Kropf Mfg. Co.
2101 Rockwell Street. Chicago

RAYFIELD CARBURETOR

Digitized by Google



Brewster Country Brougham

Price
$8300

This splendid car is typical of the many whose manufacturers demand an automobile clock qualified to harmonize with their other superior equipment. That is why Brewster & Company have chosen

The Waltham Automobile Clock

Over 250,000 Now in Use as Standard Equipment

Here is a clock so constructed that it will keep perfect time no matter how changeable the temperature or how rough the road. A red signal on the dial shows you when it needs winding. Has two main springs and is splendidly durable. In appearance it conforms perfectly with the luxurious furnishings of the finest cars.

THESE CARS ARE EQUIPPED WITH THE WALTHAM AUTOMOBILE CLOCK

Anderson 6-40	Kissel
Apperson	Locomobile
Brewster	Marmon
Cadillac	Mercer
Chalmers	Murray
Cole	Owen-Magnetic
Crane	Packard
Cunningham	Pierce-Arrow
Detroit-Electric	Rauch & Lang
Doble	Rolls-Royce
Fergus	Simplex
Franklin	Stearns
Hal	Studebaker
Haynes	Willys-Overland
Hudson Super-Six	Winton
Jordan	



WALTHAM WATCH COMPANY,

WALTHAM, MASS.

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Over 500,000 Motorists Use It

The fact that over 500,000 motorists are now using the SHALER 5-Minute Vulcanizer is convincing proof of its ever-increasing popularity. Every motorist is a prospect for one of these handy tube vulcanizers—it should be in every car-owner's tool kit—for use anywhere—on the road or in the garage.

On account of the tremendous cost of new tires and repairing, the *demand* for the SHALER 5-Minute Vulcanizer is greater today than ever before.

Regular advertisements appear in the best national and motor magazines throughout the season—motorists are educated to recognize the SHALER and to demand it—to call for it by name.

Sell the SHALER 5-Minute Vulcanizer. Every sale of a 5-Minute Vulcanizer gives you a good profit. Besides, the big resale of patch-and-heat units furnishes you a continuous profit—it brings motorists to your place for SHALER supplies—and for other goods.

As soon as you start selling the SHALER 5-Minute Vulcanizer, new customers will quickly be noticeable—coming to your place for all sorts of supplies and accessories. As a stimulus to enlarge your business and increase your sales—the SHALER 5-Minute Vulcanizer cannot be equalled.

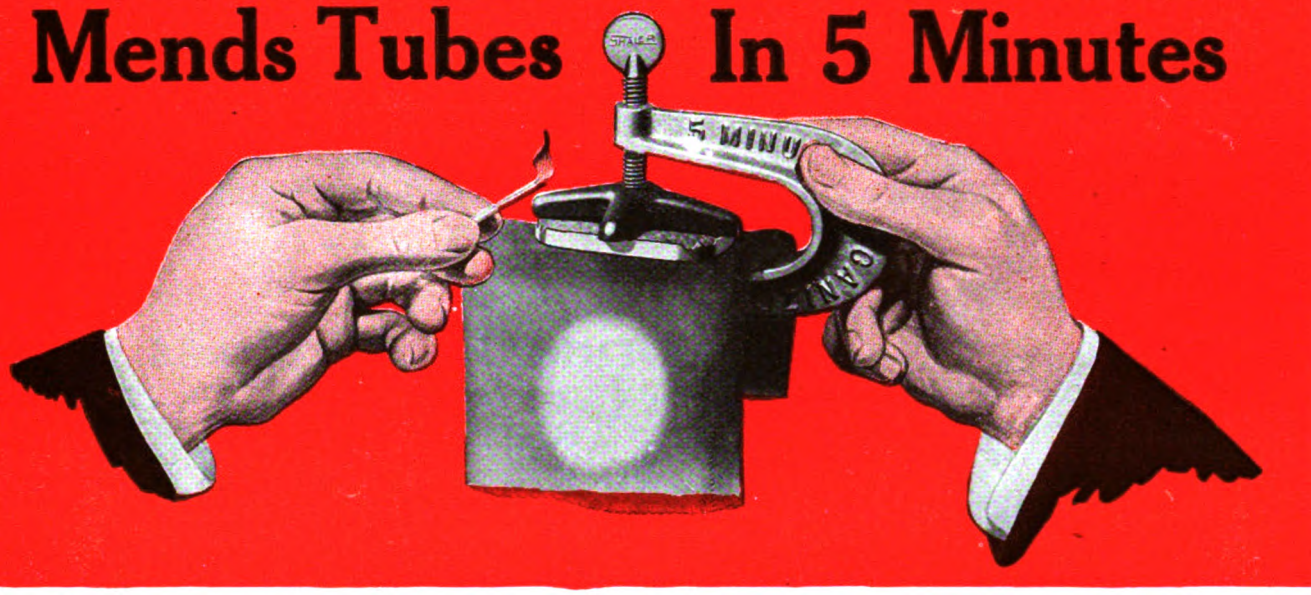
All Jobbers Sell It

Practically any jobber in the United States can supply you with SHALER 5-Minute Vulcanizers. Our large catalog describes the complete line of SHALER Vulcanizers for motorists' use—also complete equipment for garages and tire repair shops. Mailed free on request.

SHALER

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A Match Is All You Need!
Mends Tubes In 5 Minutes





6 Round Patch-and-Heat Units for Punctures
Additional Supply 75c per dozen

Complete Outfit $1.50
Includes
Six Round and Six Oblong Patch and Heat Units



6 Oblong Patch-and-Heat Units for Cuts and Tears
Additional Supply 75c per dozen

The Patented Heat Unit is a combustible disc, chemically treated to give the proper heat without flame or blaze. Works perfectly in any weather, and tubes cannot become overheated or undercured.

The Rubber Patch is of pure para rubber, fabric-backed. It is a unit with the heat disc. This fits over the puncture and the heat of the disc seals the cut with this new tough rubber.

The repair is a permanent one—takes only 5 minutes—and you don't even soil your hands! No gasoline—no cement or flame required. The operation of the SHALER 5-Minute Vulcanizer is entirely automatic—and it works without fail. Furnished with full instructions in neat box—compact enough to fit the motorists' tool kit.

Order From Your Jobber NOW

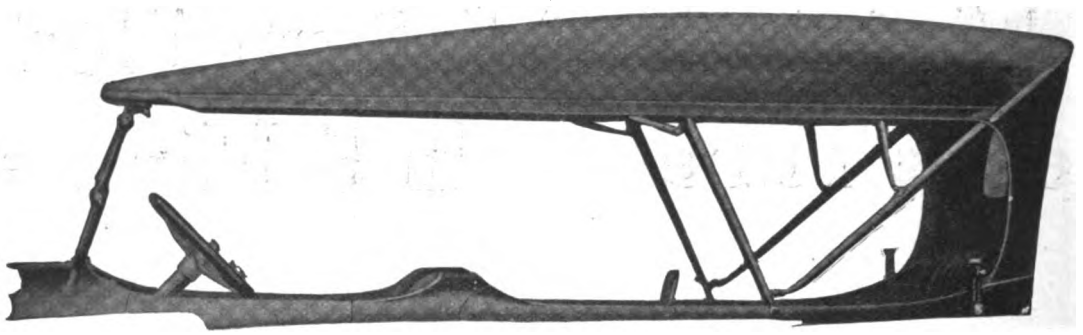
Don't delay! The enormous demand for these vulcanizers makes it necessary to place your order early if you want to be sure of prompt shipments. Order now or make a memo to ask your jobber's salesman about it.

C. A. Shaler Company, 405 Fourth St., Waupun, Wis.

Oldest and Largest Manufacturers of Vulcanizers

5 Minute Vulcanizer

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A DrideK Top Does Help to Sell Cars

A DrideK Top Increases the Value of a Car Far More Than It Costs

TRADE DRIDEK MARK REG.

The Most Remarkable Top Material Yet Produced

Now is the time that you should look into DrideK and have it on hand to meet the demand which is sure to come.

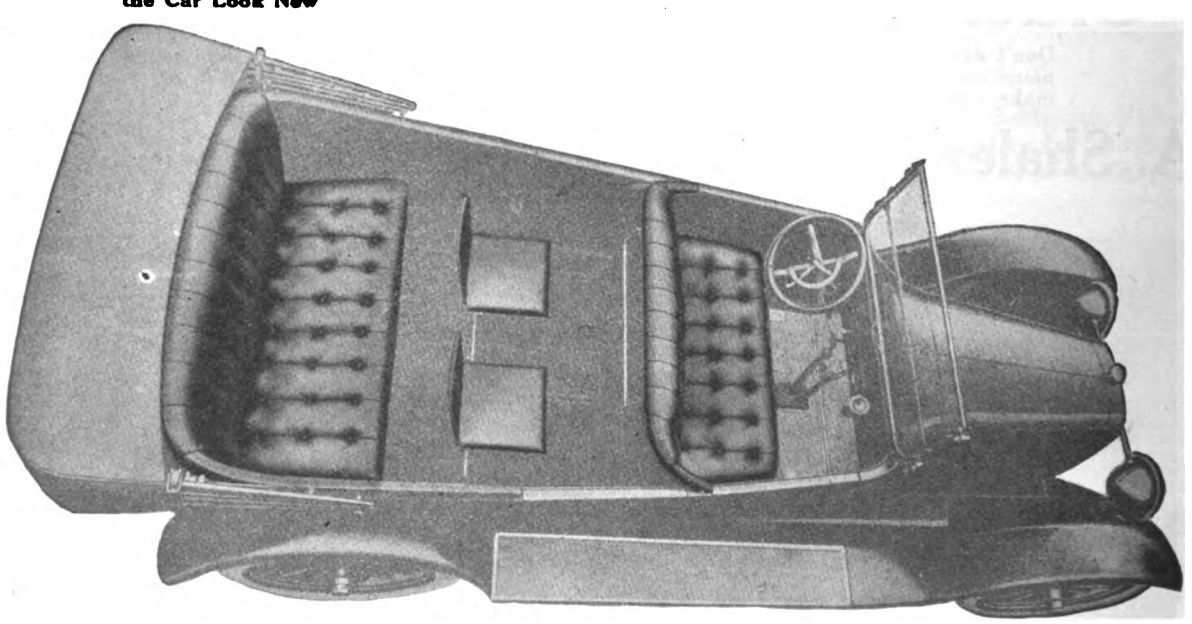
DrideK is very pliable, easy to work and will not scratch or chafe. It makes a remarkable top.

Send for samples and prices. Then get DrideK in stock—it will make money for you.

L. J. MUTTY COMPANY

BOSTON, MASS.

DrideK Upholstery Makes the Car Look New



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STEPHENS
Salient Six

An Engine of Whispering Quiet

A PERFECTED Overhead-Valve Engine which burns ALL the gasoline—an engine with ramming power, yet as quiet in its operation as whispering breezes through forest pines.

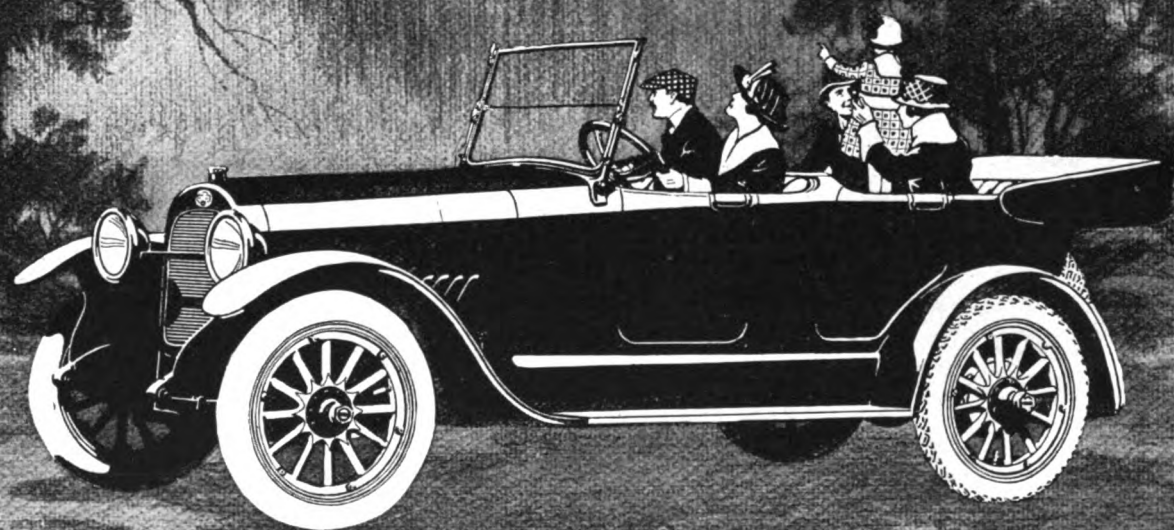
The superiority of overhead valves is unquestioned when high power in ratio to engine size is concerned. The Stephens Salient Six employs this perfect design, yet more perfected by Stephens engineers, with a superior gas handling system which burns ALL the gasoline.

Three-passenger Roadster	$1485
Four-passenger Touring	$1550
Five-passenger Touring	$1485
Five-passenger Victoria	$1660
Five-passenger Touring Sedan	$1985

Stephens Motor Branch
of Moline Plow Co., *Moline, Illinois*

Factory: Freeport, Illinois

DEALERS: The reason why this remarkable power-plant is the most advanced engineering achievement of the day is an interesting story of logical facts. We have literature which will convince you. We have a protective dealer's proposition. Write!



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GETTING ACQUAINTED WITH AMAZON

PROPOSITION
FREE ADVERTISING

Some firms co-operate with the dealer more than others. Some pay part of your local advertising. Some just furnish the copy and cuts—and the dealer buys the space.

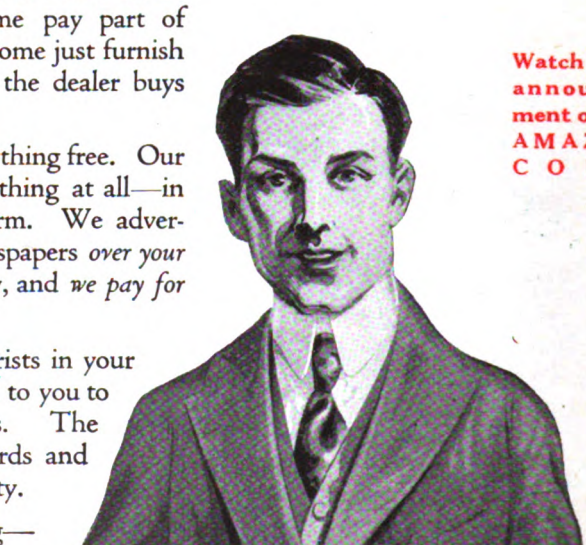
Amazon Dealers get everything free. Our co-operation costs you nothing at all—in any manner, shape or form. We advertise in your own local newspapers *over your name*, we furnish the copy, and *we pay for the space.*

We will circularize motorists in your territory—and send them to you to buy Amazon Supertires. The same is true of Bill Boards and all other forms of publicity.

All this costs you nothing—lessens your overhead—and adds to your profits.

Write us and we will tell you more at once about the Amazon proposition for Jobbers and Dealers.

(Fifth Ad of a Series)



Watch for the announcement of the AMAZON CORD

AMAZON PAYS YOUR ADVERTISING BILLS

THE AMAZON RUBBER COMPANY

AKRON, OHIO

New York Branch
218 Amsterdam Ave

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Can You Really Help a Motorist When His Radiator Leaks?

Leaky radiators have been a troublesome problem ever since the first water cooled car was driven. Yet there never was a product for the repair of leaks that a thoughtful motorist could take seriously—until "X" RADIATOR LIQUID came out two years ago. And last year *nearly half a million cans of "X" Liquid were sold.*

MOTORISTS have found "X" Liquid to be the *only* product THAT REPAIRS leaks scientifically, quickly and permanently—and with POSITIVE BENEFIT to the cooling system.

"X" repairs leaks without metal or fire!

"X" is a chemically pure liquid. It is poured into the radiator, circulates freely with the water and seals all leaks in the radiator, waterjacket, pump, hose and elsewhere in the cooling system.

In using "X" there is *no need to drain the radiator.* No bother—nothing to take apart. *"X" will do from $10 to $25 of repair work in 10 minutes.*

"X" prevents rust and scale!

The "X" that remains in the water neutralizes the corrosive elements and eliminates rust. It also prevents the formation of scale. By keeping the water passages free and clear "X" Liquid *improves cooling.*

"X" is the ONLY product for repairing leaks that is recommended by radiator manufacturers and automobile engineers.

Where you now carry *three different products,* with "X" Liquid you need carry only *one.* "X" *repairs leaks, prevents rust, cleans out scale.* This means *less* capital tied up.

"X" Liquid sells at a fair price that every motorist gladly pays—because "X" *will do the work right.* A money-back guarantee is printed on every can.

Large Size Can - - - $1.50
Will do a $25 repair job!

Ford Size - - - - - 75c
Will do a $10 repair job!

Stock This EXTRA PROFIT Assortment!



Hundreds of dealers had extraordinary success with this assortment last year. One dealer turned it over *twelve times.*

"X" Liquid is an *all year seller.* It is a preventative as well as a cure and ought to be kept constantly in the water. This means more sales—*at least two cans a season to every car owner.*

The Special Assortment of "X" Liquid consists of twelve 75-cent cans and six $1.50 cans. Regular cost is $12. In addition we give you one $1.50 can FREE. Assortment retails for $19.50. Selling literature, posters, etc., included. Also a handsome mahogany display stand given FREE.

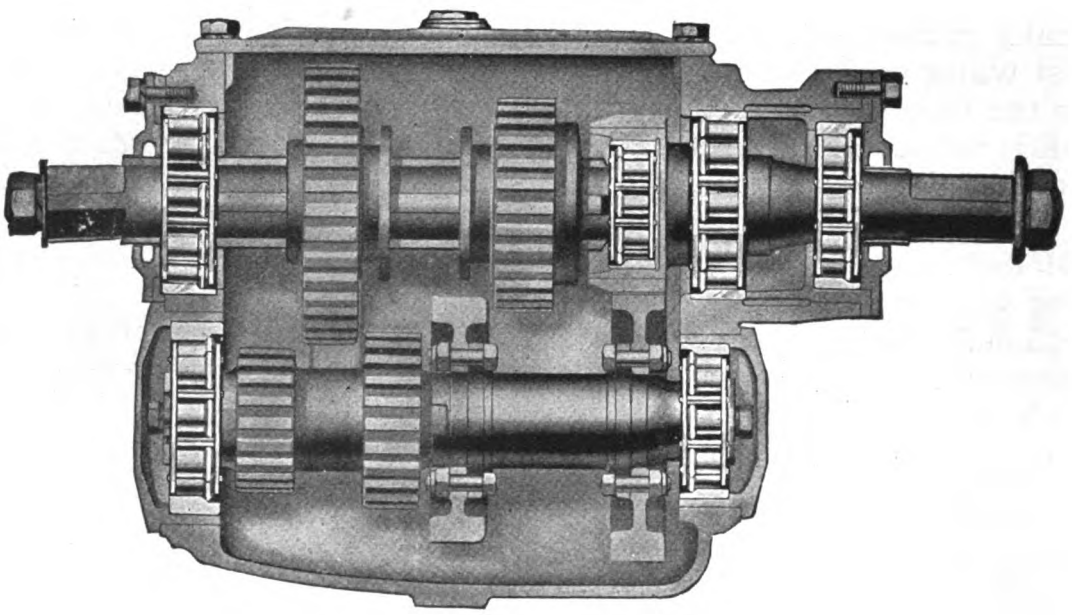
Ask your jobber—or write us—*today.*

"X" TRADE MARK **RADIATOR LIQUID**

"X" LABORATORIES, 630 Washington St., Boston, Mass.

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BOWER SAVES POWER



Economical Transmission of Power

THE bearings used in the transmission gear of pleasure car or motor truck must be simple in construction—noiseless in operation—long-lived—and, most important of all, free from the necessity of adjustment.

Bower Bearings *never need adjustment.* The roller and the raceway are always parallel, they are self-aligning and wear is reduced to the absolute minimum.

BOWER
ROLLER BEARING CO.
Detroit Michigan

When writing advertisers please mention Motor World—It identifies you

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DU PONT AMERICAN INDUSTRIES



The Auto Specialty That Sells Itself

100% efficiency is solving one of the most vexing problems of motoring.

Pontoklene removes tar like magic! Makes tar melt and run like the proverbial snowball in a real hot place. Is also a perfect grease and oil remover—restoring the original polish of a car without rubbing. Much better than gasoline for cleaning engines.

Successfully established wherever introduced by distribution of samples. Every sample makes a buyer.

Garages supply it to their car washers because it saves hours of time and insures clean work.

The empty can makes a fine reserve oil carrier.

Prices: ¼ gallon, $1.00
½ gallon, $1.50
Quantity Discounts to the Trade

Delivered free upon receipt of price if no dealer in your city can supply you.

Special Proposition to Dealers and Distributors

Get Pontoklene in stock quick—before the road tar season starts. We will help you introduce it. After that it sells itself. Write us today.

Mark X before subject that interests you and Mail this Coupon to
E. I. DU PONT DE NEMOURS & CO.
ADVERTISING DIVISION
WILMINGTON M. W. DELAWARE

___	Pontoklene	___	Motor Fabrikoid
___	Rayntite Top Material	___	Craftsman Fabrikoid
___	Blasting Powder	___	Truck Special Fabrikoid
___	Farm Explosives	___	Marine Special (U. S. Stand.)
___	Hunting	___	Fabrikoid Sheeting
___	Trapshooting	___	Fairfield Rubber Cloth
___	Py-ra-lin Toilet Goods	___	Anesthesia Ether
___	Challenge Collars	___	Leather Solutions
___	Novelty Sheeting	___	Metal Lacquers
___	Transparent Sheeting	___	Mantel Dips
___	Py-ra-lin Rods and Tubes	___	Bronzing Liquids
___	Py-ra-lin Specialties	___	Pyroxylin Solvents
___	Sanitary Wall Finish	___	Refined Fusel Oil
___	Town & Country Paint	___	Commercial Acids
___	Vitrolac Varnish	___	Alums
___	Vitrolac Stain Finish	___	Wood Pulp
___	Flowkote Enamel	___	Pigment Bases
___	Antoxide Iron Paint	___	Tar Distillates
___	Auto Enamel	___	Dyes and Bases

Name _____

Address _____

City _____ **State** _____

Visit the Du Pont Products Store
1105 Boardwalk
Atlantic City, N. J.

DU PONT CHEMICAL WORKS

Owned and Operated by
E. I. du Pont de Nemours & Company

Equitable Building **New York**

The Du Pont American Industries are:

E. I. Du Pont De Nemours & Company, Wilmington, Delaware, Explosives
Du Pont Chemical Works, Equitable Bldg., New York, Pyroxylin and Coal Tar Chemicals
Du Pont Fabrikoid Company, Wilmington, Del. Leather Substitutes
The Arlington Works, 725 Broadway, New York. Ivory Pyralin and Cleanable Collars
Harrison Works, Philadelphia, Pa. Paints, Pigments, Acids and Chemicals
Du Pont Dye Works, Wilmington, Del. Dyes and Dye Bases

DU PONT

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48 MOTOR NECESSITIES CO.

MOTOR NECESSITIES CO. 49

RED HEAD SPARK PLUGS

Standard ⅜" ⅜" extension

Standard ½"

Standard ⅞"-18 (S. A. E.)

Standard ⅞"-18 ½" extension

The Vitristo… the …ret of Red Head Spark… …n. Red Head Plugs are me… …f ty… …s to fit the requirement…

The Standard Plugs are built in accordance with the most successful practice. The center electrode and firing point are nickel manganese alloy, which eliminates the possibility of burning off plug points. They may be taken apart, cleaned and reassembled without disturbing the spark gap adjustment.

tanc… Metr… Designed especie… for motorcycle moto… Sturdy and com…

Truck and Tractor Combination)

Big Boy ⅞"-18-⅜" ext.

Big Boy ⅞"-18 (S.A.E.)

Big Boy Plugs have a superior con…

The Red Head Disp… Cabinet No. 50

JOBBERS

Make sure that a full line of Red Head Spark Plugs appear in your catalog. Put yourself in position to profit by the tremendous demand which is forecasted for the coming season, a demand which we, as manufacturers, are prepared to fill promptly.

Red Head Spark Plugs are well known and widely advertised, and for years have given the utmost satisfaction.

Individual cuts, 1¼" to 2" high, or full-page electrotypes may be had. Red Heads get the business.

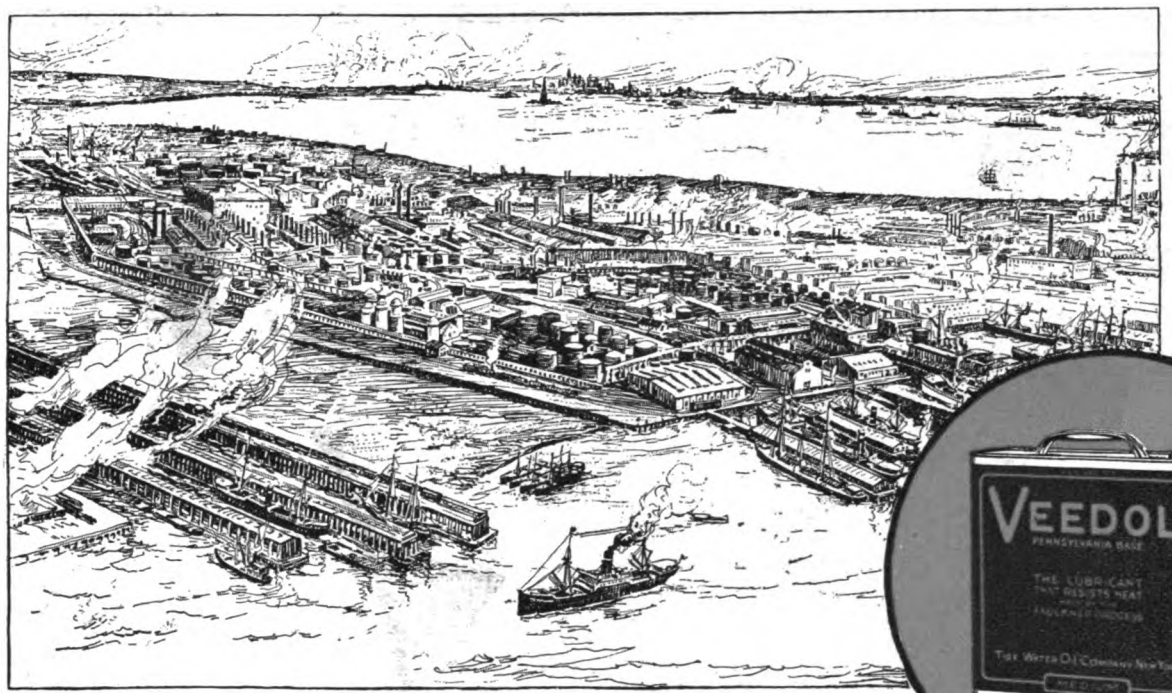
Write us today.

Emil Grossman Mfg. Corp'n

Bush Terminal Bldg. No. 20

Brooklyn (New York City), N. Y.

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Part of the great Tide Water Oil Company Refineries, Where Veedol is made

Get your share of $2,000,000 Veedol profits

Last year the sales of Veedol doubled. This year they are already running ahead of the 1917 record.

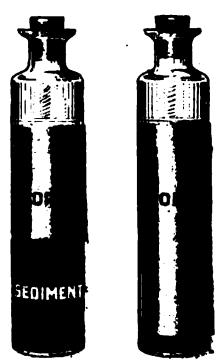
Retailers report 60%—90%—120%—and even larger gains in volume of sales.

A Veedol sign over your door will bring you more sales and bigger profits.

Veedol advertisements reach more than 28,000,000 people. Think what this means to the Veedol dealer!

No work at all to sell Veedol

Dealers tell us that their sales are increasing rapidly, with no effort on their part. The sales work has already been done by our national advertising. Good profits, increased volume, and the good-will and prestige that comes from handling a highly satisfactory article are also among the benefits enjoyed by the dealer who sells Veedol.



Ordinary oil after use — Veedol after use

Showing sediment formed after 500 miles of running

Then, too, you are protected by doing business with a big, broad-gauge concern, manufacturing its entire product in its own plant.

Why Veedol sales grow

Sediment in ordinary oil is the greatest cause of friction and wear in automobile engines by excluding lubrication. As shown by the two bottles, Veedol reduces sediment 80%. Veedol is not like ordinary oil because it is made by the Faulkner Process—a recent discovery controlled entirely by the Tide Water Oil Company.

Fast-selling greases

There is a special Veedol grease for every purpose, each of the same high quality as Veedol. That is why you can increase your sales if you stock Veedol greases.

TIDE WATER OIL COMPANY

VEEDOL DEPARTMENT

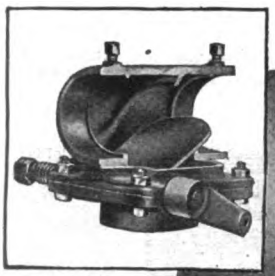
Successors to PLATT & WASHBURN REFINING CO.

Bowling Green Building **NEW YORK**

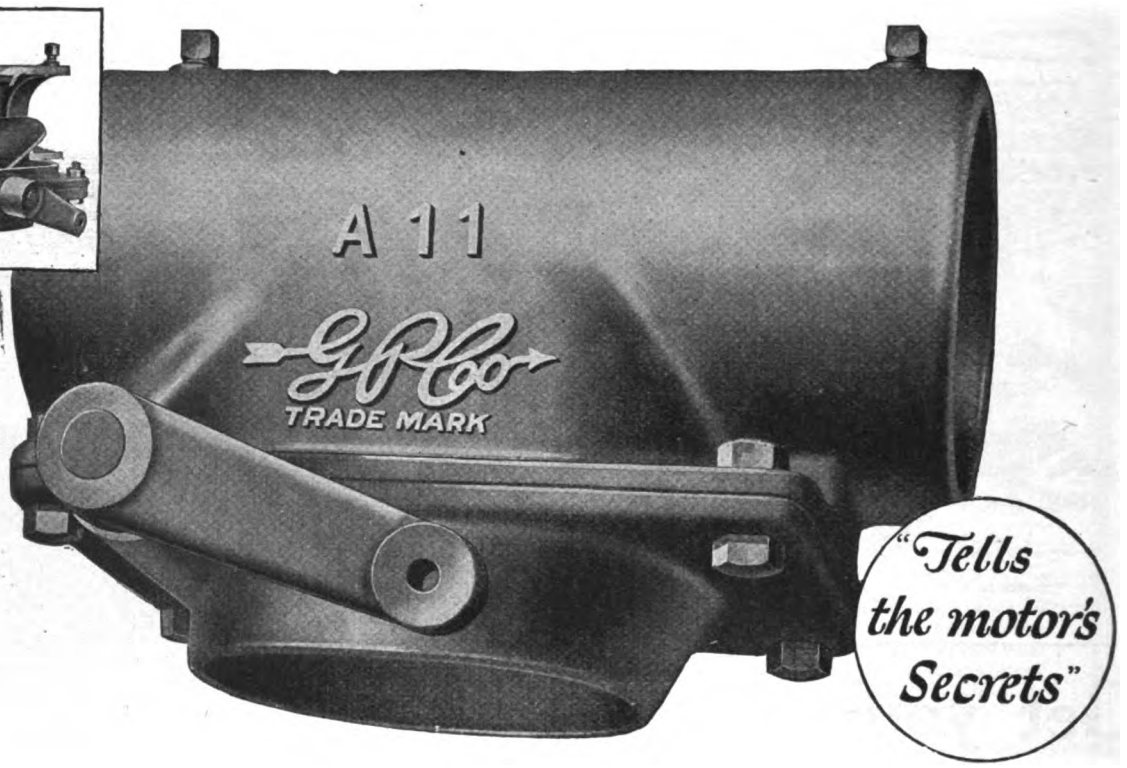
BRANCHES: BOSTON PHILADELPHIA CHICAGO SAN FRANCISCO

When writing advertisers please mention Motor World—It identifies you

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Sectional view showing patented gas-tight tongue-valve open



"Tells the motor's Secrets"

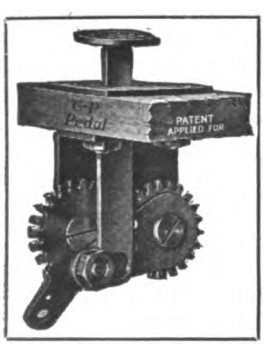
Keep your engine fit—nip trouble in the bud

Don't overlook the little engine troubles. They soon develop into big ones. Know what your engine is doing, and it's easy to keep it right.

Put a G-P Muffler Cut-Out on your car. It accentuates the purr of the engine and warns against power wastage. The G-P calls attention to operating defects that escape the unaided ear. It cuts cost by saving power.

The G-P Muffler Cut-Out is built simply and strong. Gases exhaust fully with no possibility of back-pressure. It literally blows the carbon out of your engine. Carbon cannot accumulate. Made in two parts permitting quick and thorough access to interior. Gives complete cooling relief to the motor. Put one on and know at any time what your engine is doing. It will save gas and increase power.

The G-P Muffler Cut-Out
and
G-P PEDAL



The G-P Pedal is made entirely of steel, and is strong enough to operate any cut-out spring. The geared compound leverage makes it easy to operate.

Compounding of leverage and geared parts allows installation in minimum space. Its installation requires but one small hole drilled in floor board.

The locking device is on the bottom plate, so the pedal can be fastened to a steel or wood floor board of any thickness without altering its throw.

By releasing one screw the G-P Pedal can be changed to lift or pull in any direction. Operates any cut-out easily.



Winter business—Cold weather made profitable.

Sales Department

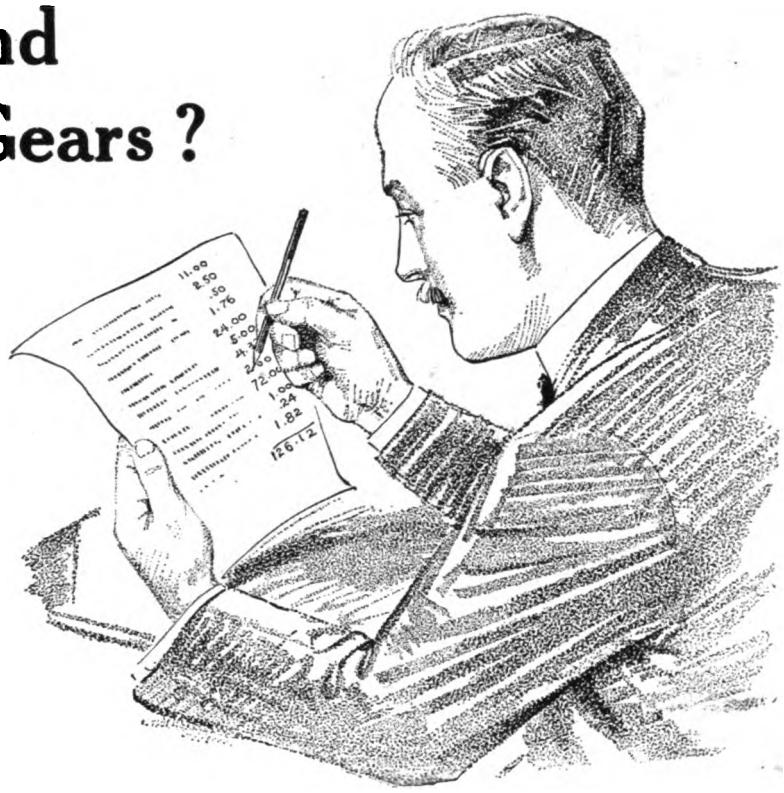
EDWARD A. CASSIDY CO., Inc.,

Madison Avenue at 40th Street, New York City

Manufacturers: The G. Piel Co., Inc., Long Island City, N. Y.

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Can You Afford To Make Your Own Differentials and Transmission Gears?



Seems like a strange question but it's well worth thinking over.

For unless every gear you turn out is absolutely perfect, gear cutting is costlier than gear cutting buying.

Every gear you have to scrap and every gear that should be scrapped but isn't—and there are a lot of them—every one of these imperfect gears represents a dead loss on one hand or is a definite source of danger to your reputation on the other. Every good enough gear that "gets by" and in failing ruins otherwise good equipment can easily cost you more than all the gears you could buy in a month.

That's why many automobile manufacturers and designers are leaving their gear work to specialists and are ***buying***

NEW PROCESS GEARS

In this way they not only can ***demand*** *perfection but* ***get*** *it in every gear they use*

We have specially trained gear cutters—gear cutting tools that absolutely guarantee uniformity and accuracy in our gear work and a system of inspection that detects and eliminates the smallest deviation from the standard of excellence set up in our twenty-nine years' experience cutting good gears.

Exceptional facilities for quantity production and the largest, best-equipped shops in America devoted entirely to gear cutting permit us to quote a remarkably close price on every gear we sell.

We will be glad to have an order from you so that we can prove what we say.

N.P.R.H. REG. U.S. PAT. OFF.

NEW PROCESS GEAR CORPORATION

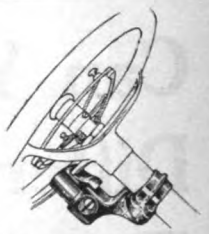
N.P.R.H. REG. U.S. PAT. OFF.

SYRACUSE, N.Y.

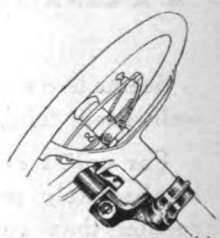
171

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No. 1. Position when locked—holds wheel rigid



No. 2. Unlocked position —allows wheel to turn freely



No. 3. This section easily removed when desired

No Need to Sell You on the Idea That You Should Protect Your Car Against Theft—Is There?

CAR stealing has become a systematized business.

The police admit their inability to cope with the situation unless car owners themselves will take proper precautions. The situation is serious; more serious, perhaps, than you imagine.

So serious that insurance companies will no longer insure a car against theft for its full value.

So serious that you can now insure a new car against theft for only approximately 50 to 75% of its value—yet the cost of the insurance has not been reduced.

What Measures Have You Taken to Safeguard Your Car Against Theft?

The Goodrich Steering Column Lock is, we believe, the most practical, convenient and completely thief-proof lock on the market.

It can be easily installed by anyone in a few minutes. No holes to bore, no changes to make in your steering column.

Once Installed, the Most Clever Car Thief Cannot Beat It

The Goodrich Steering Column Lock holds the steering wheel rigid and keeps the wheels in a straight line, thereby preventing anyone from either driving or hauling the car away. Conforms with all city and traffic regulations, because the car can be pushed backward or forward in case of fire. For sale by all the good dealers and jobbers or direct.

Built for all makes of cars. For Fords, $7.25 complete. For all other makes of cars, $9.25 complete.

Dealers, Jobbers: Present indications are that there will be a tremendous demand for this lock during 1918, due to the alarming increase in car thefts and the new insurance regulations now going into effect. If you have not already done so, write for discounts and sample locks.

Mailing literature and catalog electrotypes available.

GOODRICH-LENHART MANUFACTURING CO.
418 Widener Bldg., Philadelphia, Pa.
Factory: Hamburg, Pa.

Goodrich Steering Column Lock

(YALE) EQUIPPED

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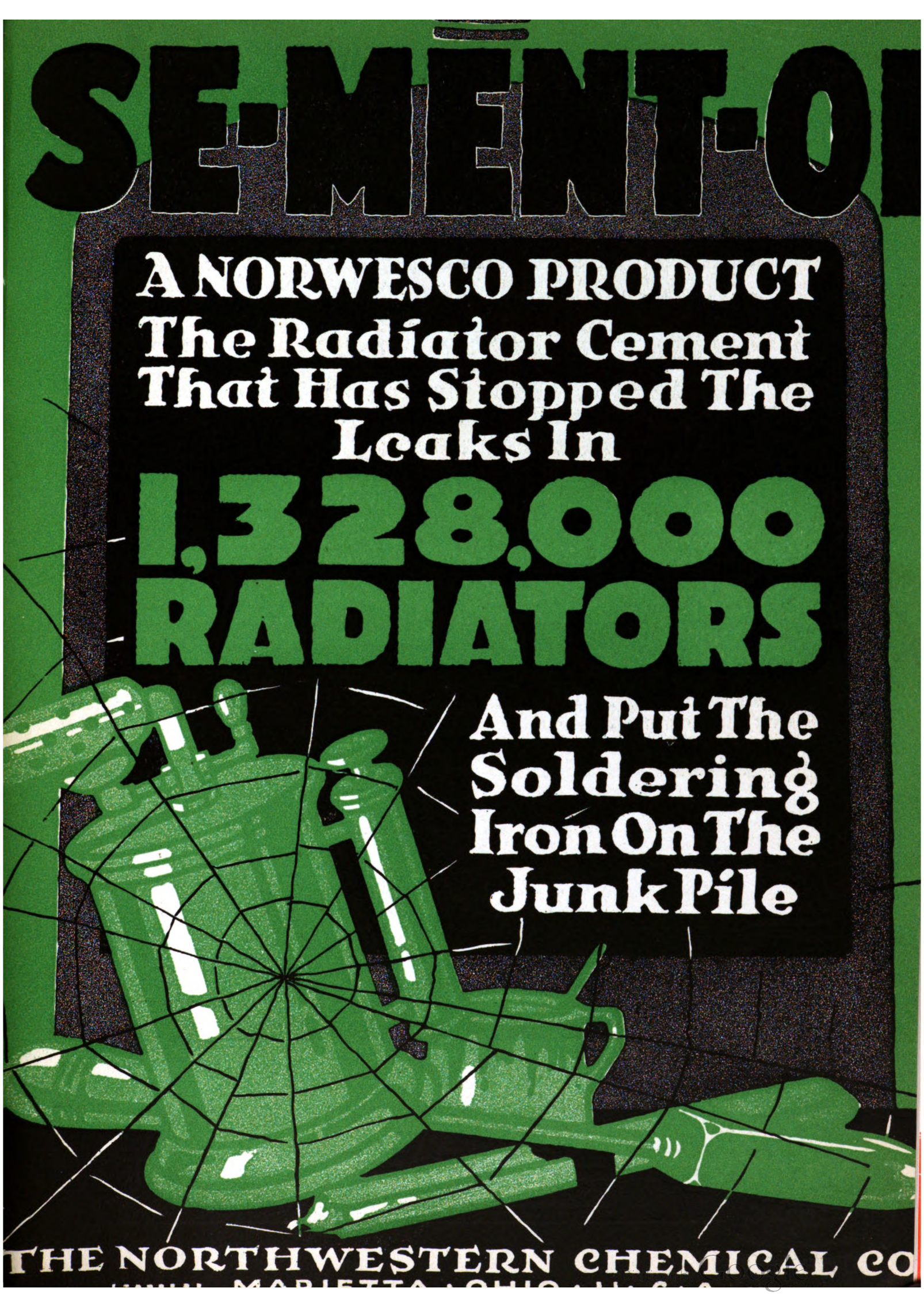
SE-MENT-O

A NORWESCO PRODUCT

The Radiator Cement That Has Stopped The Leaks In

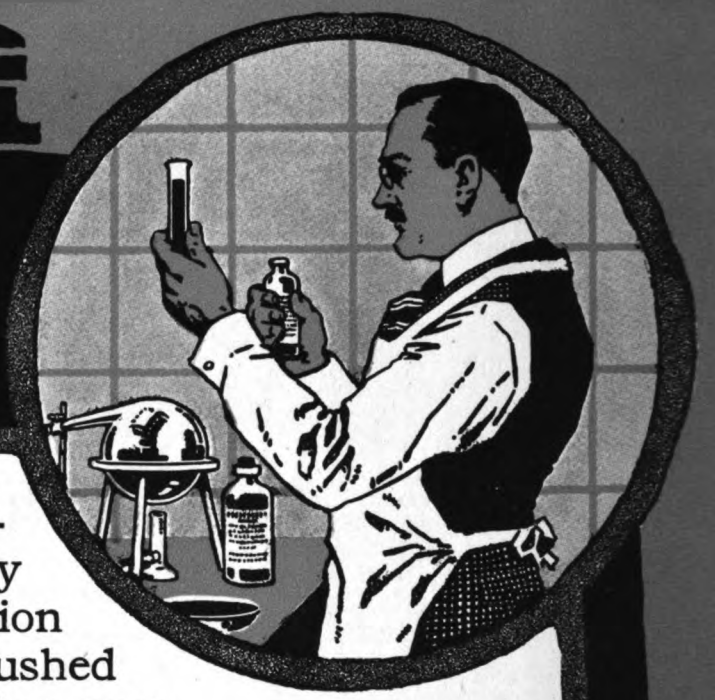
1,328,000 RADIATORS

And Put The Soldering Iron On The Junk Pile



THE NORTHWESTERN CHEMICAL CO

SE-MENT-OL "FINDS *the* LEAK AND FIXES IT"



SE-MENT-OL, the radiator cement—already a "known value" to a million motorists—is now being pushed by the greatest advertising campaign ever run in The Saturday Evening Post on chemical automobile utilities.

This advertising will have just one object:—To sell Norwesco products ***through dealers.***

This great campaign is for you—for every garage man handling

NORWESCO

The Chemically Correct Line

More than a million motorists are now using SE-MENT-OL and the number is growing daily. All because SE-MENT-OL is scientifically compounded and Chemically Correct.

Mending radiators with SE-MENT-OL is an easy task. Makes a permanent job—and does not lay up the car. Cannot possibly injure or clog the radiator or hose connections. No wonder motorists take to it!

If you drive an automobile yourself you probably have used SE-MENT-OL. If not, and if you want to know its wonderful efficiency, order a trial can and get the proof first hand.

Mail this coupon for complete information regarding our introductory assortment and display stand featuring Norwesco products nationally advertised.

The Northwestern Chemical Co.
402 State Street
MARIETTA, OHIO, U. S. A

The Northwestern Chemical Co.
402 State St.,
Marietta, Ohio,
U. S. A

Please send me complete information regarding your introductory assortment and display stand.

Name.....

Address.....

.....



OTHER NORWESCO PRODUCTS

SKALEX

UTILITY BLACK

TOP DRESSINGS

VALVE GRINDING COMPOUND

UPHOLSTERY DRESSING

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ATWATER KENT

SCIENTIFIC IGNITION

The Atwater Kent Equipped King "8" Is Doing War-Time Service

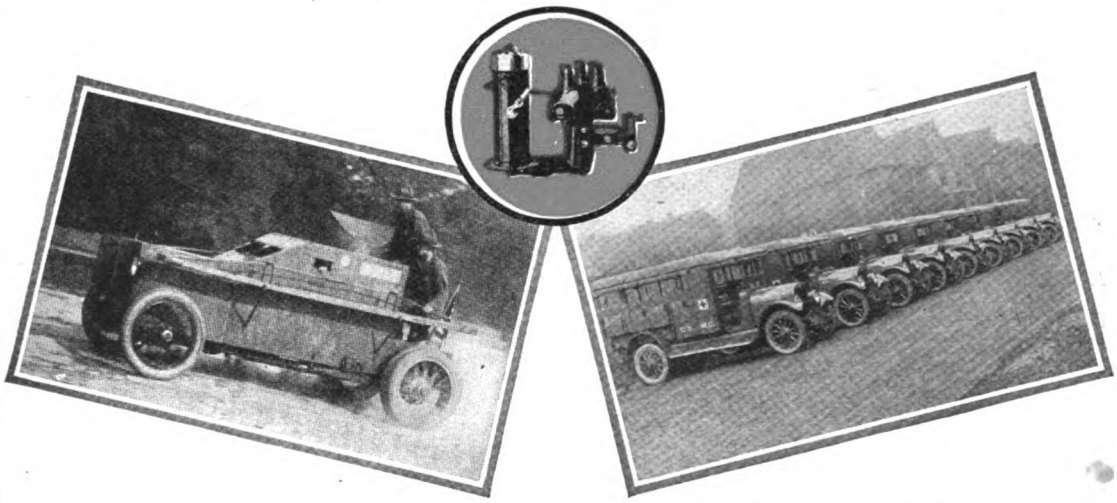
THE standard King "8" Chassis, Atwater Kent equipped, after passing rigid government tests is now serving the colors as armored car and motor ambulance.

Atwater Kent Ignition has helped this pioneer eight live up to its name of "The Car of No Regrets."

The uniform, hot, fat spark furnished by Atwater Kent Ignition plus its simplicity of construction and unfailing performance has contributed in a large measure to such notable feats as the recent 7-day non-motor-stop run, the high-gear climb of Mt. Wilson, and the "sealed-in-high" non-stop and fuel economy tests in various states.

To be the Atwater Kent dealer in your community is to tie up with a liberally advertised line that has received the approval of over 400,000 motorists and over thirty manufacturers of cars, trucks, motors and tractors.

Write to 4940 Stenton Avenue for booklet "Selling Atwater Kent Ignition"



ATWATER KENT MFG. WORKS *Philadelphia*

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BEST IN THE LONG RUN

FAIR TREATMENT

Make This Show Window Yours

YOU are looking, Mr. Tire Dealer, right into a show window that is selling tires by thousands, and it ought to be selling them for you. The biggest, best dressed shop window of tires in America, it displays tires to thousands and tens of thousands of tire customers—your customers, and customers you want.

Where You See This Sign Goodrich Tires are Stocked

GOODRICH TESTED TIRES

It is the great national shop window of tires—*Goodrich*. The country-wide display of the name and fame of Goodrich, and all Gooorich does to fill the eye and mind of tire users. It's the show window for the store of every Goodrich dealer.

For remember, Mr. Tire Dealer, Goodrich sells tires FOR you, rather than TO you.

The Page Opposite Dressed to Sell Tires for You

TAKE for instance the page facing you. Strikingly pictured in four colors, as well as in black and white, that page, rich and vivid, looks forth this month from the standard magazines of the country at tire users, carrying the message of Goodrich Tested Tires.

That page is a show window of the tires of every Goodrich dealer. It displays his goods not only before motorists who pass his store, but to customers and prospective customers for twenty miles around.

That is the way Goodrich keeps fresh in the minds of tire users the sure service of Goodrich Tested Tires, that service proved out the nation over by Goodrich Test Car Fleets. That is one way Goodrich sells **SILVERTOWN CORDS** and **BLACK SAFETY TREADS,** and Tubes Brown and Gray, for Goodrich dealers. Yet it is but a fraction of all Goodrich does to sell tires for them.

Be a Goodrich Dealer in 1918

MAKE the Goodrich show window, the window display of your tires, Mr. Tire Dealer, by being a Goodrich dealer. It will prove a sheet anchor in this critical year of 1918.

All business must adjust itself to the need of salesmen. Goodrich eases this adjustment in selling tires. Enlist the silent salesmanship of Goodrich, and spread the selling power of your goods to every tire user who passes your store, and every tire user in your town and district.

Link your store to the country-wide outdoor display of GOODRICH BILLBOARDS—they will point the way to your store—with a Goodrich Dealer Sign.

Be a Goodrich dealer. It will help solve your business problems for 1918, and make sure your profits.

THE CITY OF GOODRICH · AKRON, OHIO.

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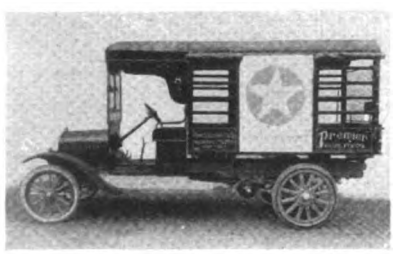


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A VALUABLE

WRITTEN BY A DEALER

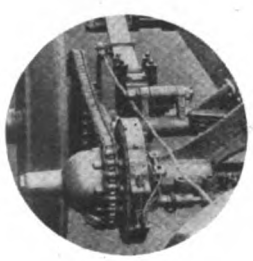




The Redden Franchise has many new and money-making features. It is written by the general manager of the Redden Company, who has been one of the largest dealers in the United States.

The Redden Truck-Maker offers both price and service, and your ownership of the Redden Franchise puts you in a position to profit most by this big demand.

Wire now for territory reservation and details of the new Redden Franchise





REDDEN MOTOR TRUCK CO., Inc.

Licensed Under Cook Patents

2337 S. Michigan Ave.
Dept. 105, Chicago, Ill.

R E D

TRUCK

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FRANCHISE

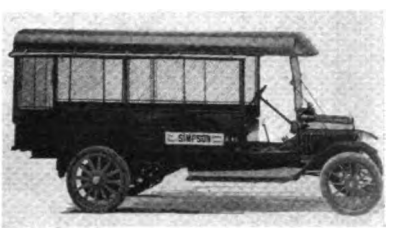
LIKE YOURSELF



With a new or used Ford chassis, the Redden Truck, at $350, does the work of a heavy-duty truck selling for from $1500 to $2000. It works at equal speeds and cuts the operating cost in half. Its price and service makes every merchant—even the small merchant—in your territory a real prospect.



The new Redden is the only attachment with service brakes on the jackshaft. It has truck wheels, a solid bar truck axle of heat-treated steel, with heavy-duty roller bearings, steel truck springs 40 inches long, 8 leaves and 2½ inches wide. Hardened steel bushings are used at the ends and the shackles are very heavy with large bearing surfaces. The truck frame is heavy 4 inch pressed steel channel. It telescopes over and bolts through the Ford frame, reinforcing, strengthening and holding it securely in place and prevents "weaving."



DON'T DELAY—WIRE TODAY

Secure this valuable franchise for your territory and gain the big profits that sales of the Redden Truck-Maker will produce in your district this season.



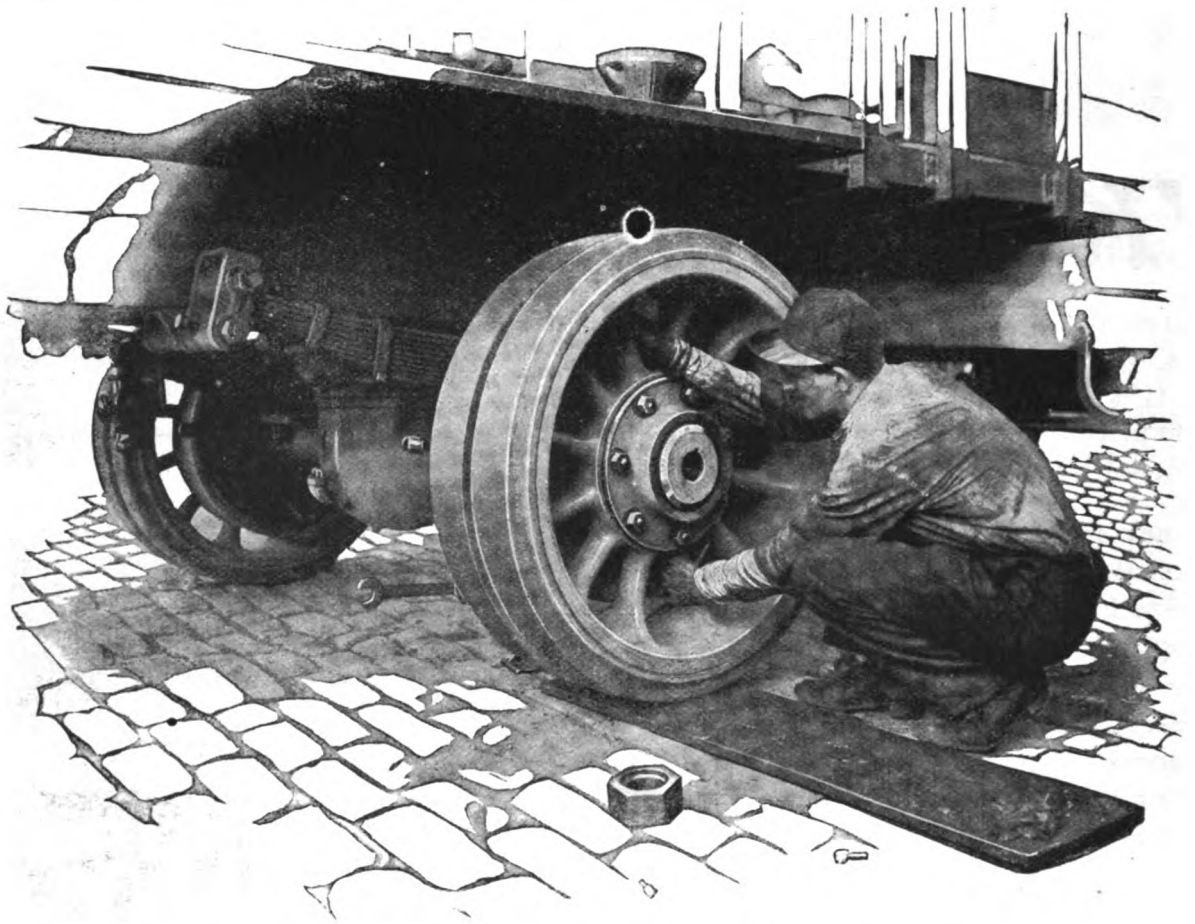
REDDEN MOTOR TRUCK COMPANY, Inc.

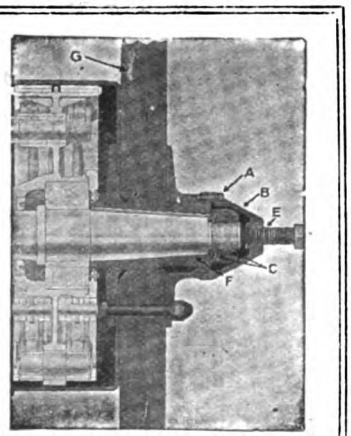
Licensed Under Cook Patents

2337 South Michigan Avenue **Dept. 105, Chicago, Ill.**

REDDEN MAKER

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Ready demountability of Sheldon wheel hub. Remove parts A, B, and C, replace B (hub cap), insert E (set screw), and screw against shaft. Tap back of wheel G till it comes loose.

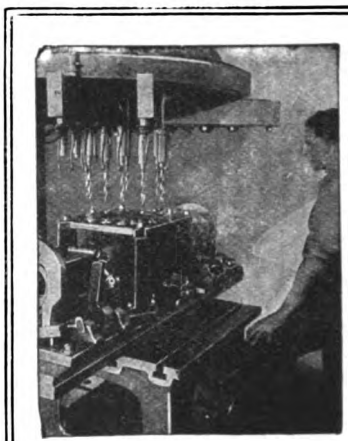
This Giant Wheel Can Be Quickly Removed

from the Sheldon Worm Gear Axle. There are only six simple operations necessary and these can be performed in a few minutes by an ordinary workman.

Most large truck users insist that, as a matter of precaution, the rear wheels be removed frequently for inspection. This is accomplished with the utmost facility on the Sheldon Axle and without exposing the ball bearings to dirt and grit because they are completely enclosed.

Sheldon Worm Gear Semi-floating Rear Axles are the highest possible expression of service and utility.

Write for complete details.



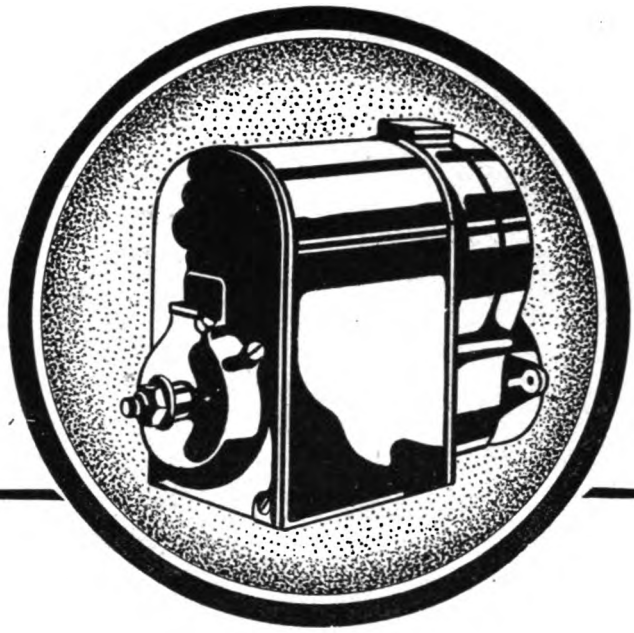
Drilling 12 stud holes at once in a worm-gear axle housing.

SHELDON

WORM GEAR AXLES

SHELDON AXLE & SPRING CO. *Makers of springs and axles for heavy duty service for more than fifty years.* WILKES-BARRE, PA.

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The Difference between Magnetos

It lies primarily in the design.

Any magneto maker can use the best selected materials if he will. Some do.

But designs are exclusive. They account for the difference both in sturdiness and in electrical efficiency.

For example, the fewer parts in Eisemann Magnetos, and in particular the one-piece frame, contribute enormously to durability and therefore reliability.

Then, too, the direct route by which the current is picked up and distributed prevents electrical losses.

The patented pole pieces and the excellent proportions of the windings are important factors.

To the combination of all these points of superiority may be traced the power of the Eisemann spark.

When thorough investigation and comparison is the basis of selecting the Magneto, Eisemann almost invariably earns the decision.

THE EISEMANN MAGNETO CO.

Sales and General Offices: 32-33d St., Brooklyn, N. Y.

Chicago, Ill., 910 South Michigan Ave.
Detroit, Mich., 802 Woodward Ave.

THE

EISEMANN

MAGNETO

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Solving The Haulage Problem

CLEVELAND telephoned Cincinnati for supplies—A big contract depended upon quick shipments.

There wasn't a freight car to be had for love or money.

But that did not bother Cincinnati. The telephone message came at eight-thirty in the morning.

At ten-thirty a big three-ton truck was on its way north loaded to capacity—

Shortly after noon the next day it was unloading at its Cleveland destination.

The saving in time alone was worth more than the entire cost of the truck.

Under existing conditions the motor truck is an economic necessity.

The railroads *must* be relieved—commerce and industry *must* depend upon the motor truck for short hauls, and frequently even for comparatively long hauls.

Wilson transportation engineers will help you to adapt Wilson Trucks to your haulage requirements.

Wilson Trucks are the product of more than thirty-five years' experience in the building of heavy duty transportation vehicles. One-, two-, three- and one-half, and five-ton worm drive models.

We will be glad to hear from a few more dependable dealers

J. C. WILSON COMPANY, Detroit

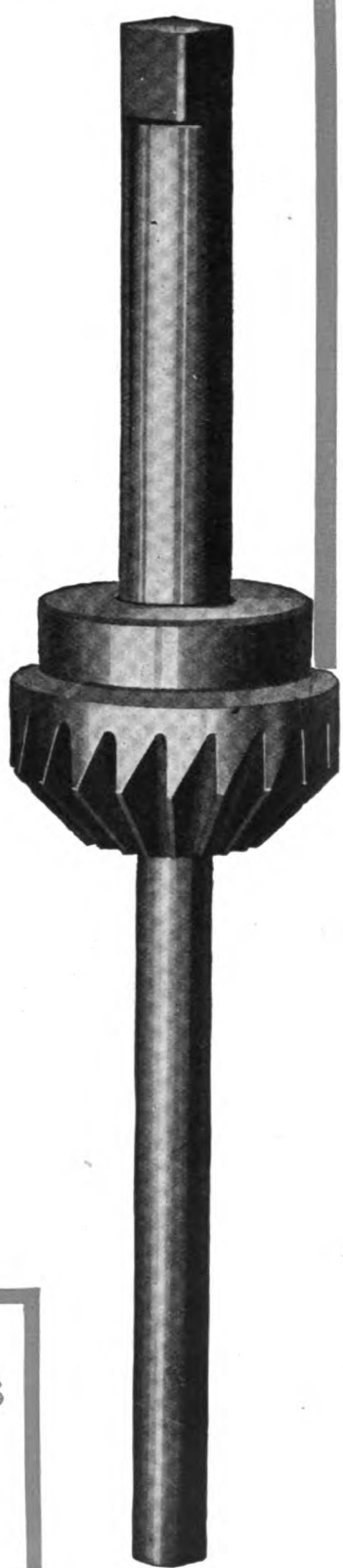
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SERVICE We Keep Sioux Tools Always Sharp--No Charge

Keen cutting edges and accurate angles are absolutely necessary in valve reseating tools. A variation of a hair's breadth in the angle of a valve seat reamer would make it impossible to seat a valve perfectly.

Sioux
Valve Seat Reamers

are not only accurately ground before they leave the factory, but we keep them in perfect condition free of charge—the owner paying only the transportation charges. This insures satisfactory results at all times.



The Sioux Refacing Tool

is also delicately adjusted. Great care must be used to keep the angle exact, when sharpening. Our expert service cares for any Sioux tool that may require sharpening.

Sioux tools are superior in working principle, material and workmanship. Each one a time and labor-saver. The livest jobber in your town is the man for you to see—today.

Liberal Discount to Dealers

Manufactured by

Albertson & Company

Sioux City, Iowa

The SIOUX Way

"Bigger Profits *Through* Better Tools"

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The Seal of Dependable Performance

ACME THE TRUCK OF PROVED UNITS

Trade Mark Reg. U. S. Pat. Off.

The Acme Message To Thinking Dealers

The Truck of Proved Units Is A Greater Sales Asset This Year Than Ever

The Acme dealership has multiplied in value. At no time in the history of the motor truck industry have "Proved Units" been so extraordinarily vital as **right now.**

Never before has truck demand been so urgent. Never before have the service requirements of truck users been so severe.

Never before has the Acme dealership been so exceedingly valuable, or the Acme demand so tremendously great.

For Acme proved units carry to the truck user a message of proved dependability. Above all else the truck buyer seeks a truck in which he can place absolute confidence. Such a truck is the Acme.

Look at these units. Timken Axles, Timken Bearings, Timken Worm Drive, Continental Motor, Detroit Springs, Cotta Transmission, Pierce Governor, Ross Steering Gear, Long Radiator, Pressed Steel Frame—and so on. Each unit the acknowledged perfection in its field—each the proved product of master engineers. Acme proved units are point by point evidence of Acme truck leadership.

ACME REG. U.S. PAT. OFF.

We're closing desirable territory with desirable men. Perhaps you can win the Acme dealership. Write.

ACME MOTOR TRUCK COMPANY

137 Mitchell Street **Cadillac, Mich.**



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Unretouched Midnight Photograph by Fowler, Evanston, Ill

The Perfect Light for Night Driving

It solves the *glare* problem, because it has no glare—absolutely none—but what is more important, it makes night driving *safe* and enjoyable—it obviates the need of dimmers, spotlights, auxiliary headlights and high candle power bulbs which drain the batteries and impair ignition.

You can now drive at night—just as safely—just as fast as in daytime—without constant fear of danger, without stopping and dimming your headlights to allow another car to pass. The SHALER Roadlighter lights the *entire* road—from fence to fence—with a bright, white, evenly distributed light.

The SHALER Roadlighter has been subjected to the most rigid tests by illuminating experts.

State, city and police officials have given this remarkable lens their approval—accident insurance companies endorse and recommend it.

We have tested it so thoroughly—that we absolutely guarantee every pair of SHALER Roadlighters.

SHALER ROADLIGHTER

Pierces the Glare of Approaching Headlights
Illuminates the Ditches
Accurate Focusing Unnecessary
Easy to Keep Clean

Shoots the Light Far Ahead
Legal Everywhere
Rays Penetrate Fog and Dust
Easy to Install

Limited Offer to Dealers Only

We want every automobile accessory dealer in the United States to try out a pair of SHALER Roadlighters on his own car—AT OUR EXPENSE.

Mail the coupon for full particulars regarding this big offer. There is no obligation—don't put it off—clip and mail coupon *now*.

C. A. Shaler Company
9408 Fourth St. Waupun, Wis.

Dealers' Offer Coupon

C. A. SHALER CO., 9408 Fourth St., Waupun, Wis.

Gentlemen: Send me full particulars about your offer to let dealers try out a pair of SHALER Roadlighters at your expense This obligates me in no way.

Name .....

Address .....

City and State .....

My Jobber's Name Is .....

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The Kind of Car Now Wanted

THE automobile dealer is being furnished constant evidence that American motorists today favor just such a passenger car as we have provided in this Oakland Sensible Six Sedan (Unit Body).

In offering quick, convenient, comfortable transportation at low cost, this year 'round Oakland presents the combination of virtues sought in these times of thrift.

Its wide utility and extreme economy not only proceed from the famous mechanism of this car but also from the new type of construction revealed in its unit body.

The elimination of all useless weight in the roof makes it more durable than a conventional construction which, usually being excessively heavy, causes severe strains.

This sedan's ability is enhanced by the comfort and convenience of its roomy two-door body, individual forward seats, wide rear seat, broad vision windows, upholstering in gray automobile cloth and generous equipment throughout.

The Oakland Sensible Six Sedan (Unit Body) is built to give the owner complete service satisfaction throughout the entire year, and therefore to build good will for the dealer during every month of every season.

OAKLAND MOTOR CAR COMPANY
PONTIAC, MICHIGAN

THIS Oakland Sedan (Unit Body), shown enclosed for winter, can be quickly changed into a delightful summer car either by lowering the windows and standards into the body-wall or by entirely removing them.

Touring Car . .	*$ 990*
Roadster	*990*
Roadster Coupe . .	*1150*
Sedan	*1190*
Sedan (Unit Body) .	*1490*
Coupe (Unit Body) .	*1490*

F. O. B. Pontiac, Mich.

OAKLAND SENSIBLE SIX

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Get in step with the times →



save

1. lives
2. tires
3. tubes
4. automobiles
5. labor
6. time
7. gasoline

MARVEL

TIE your sales to the SAVE campaign. This is the year of studied purchases.

Be among those that advocate the saving of life by use of MARVEL safeguards, the saving of tires by employment of MARVEL quick repair kits, the saving of gasoline by proper attention to valves.

SAVE is the word—the practice of 1918.

Sales timeliness—MARVEL has a definite help for you.

The ability to put merchandise across by right of value.

POSSIBILITIES

This energy goes back of essentials—necessities, every day tools required by the motorist, truck driver, motor boat owner, aeroplane chauffeur.

Expert merchandising men have brought a wide knowledge to bear upon these numbers to gain the widest appeal—to help direct your MARVEL sales with NO WASTE.

Literature for each item is ready. Hitch your sales to SAVE—be with the men who work hand in hand.

THE MARVEL ACCESSORIES MFG. CO.

CLEVELAND, OHIO. MARVEL BLDG.

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Winter Emphasizes Staggard Superiority

The original and peculiar construction of the Staggard Tread gives extra security at all seasons.

At no time does it assert itself so decisively as in the winter months.

Users of Staggard Treads are especially immune from the side-skid of slippery snows and treacherous slush that so frequently makes winter driving dangerous.

No other tread is so scientifically built to hold the road.

The Staggard Tread is the scientific solution of the non-skid problem.

It was patented (Sept. 15-22, 1908) by The Republic Rubber Corporation as the *first* effective rubber non-skid tire.

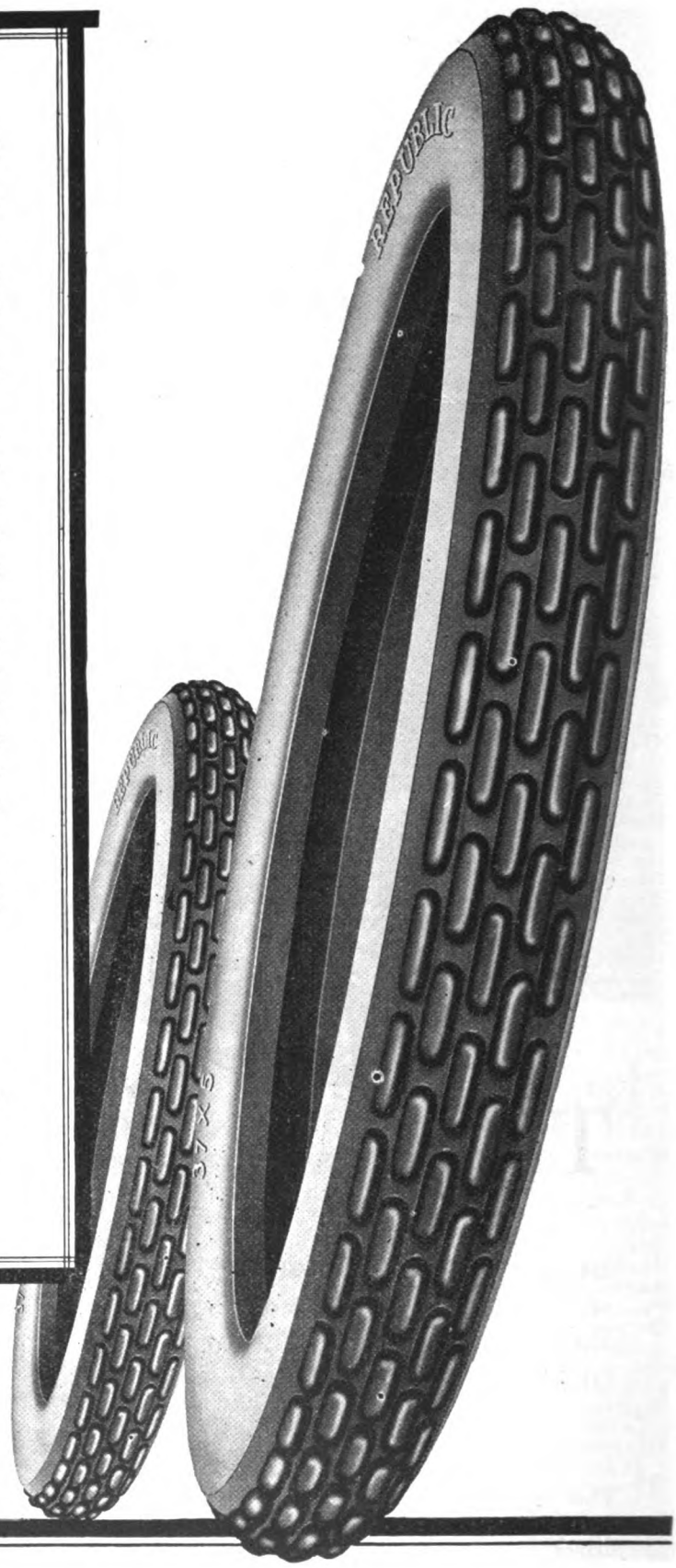
It gives *maximum non-skid* with *minimum friction.*

There is literally no other tread on the market that gives similar security in winter driving.

Republic Inner Tubes, both Black-Line Red and Gray, have a reputation for freedom from trouble

The Republic Rubber Corporation
Youngstown, Ohio

Originator of the First Effective Rubber Non-Skid Tire
Republic Staggard Tread

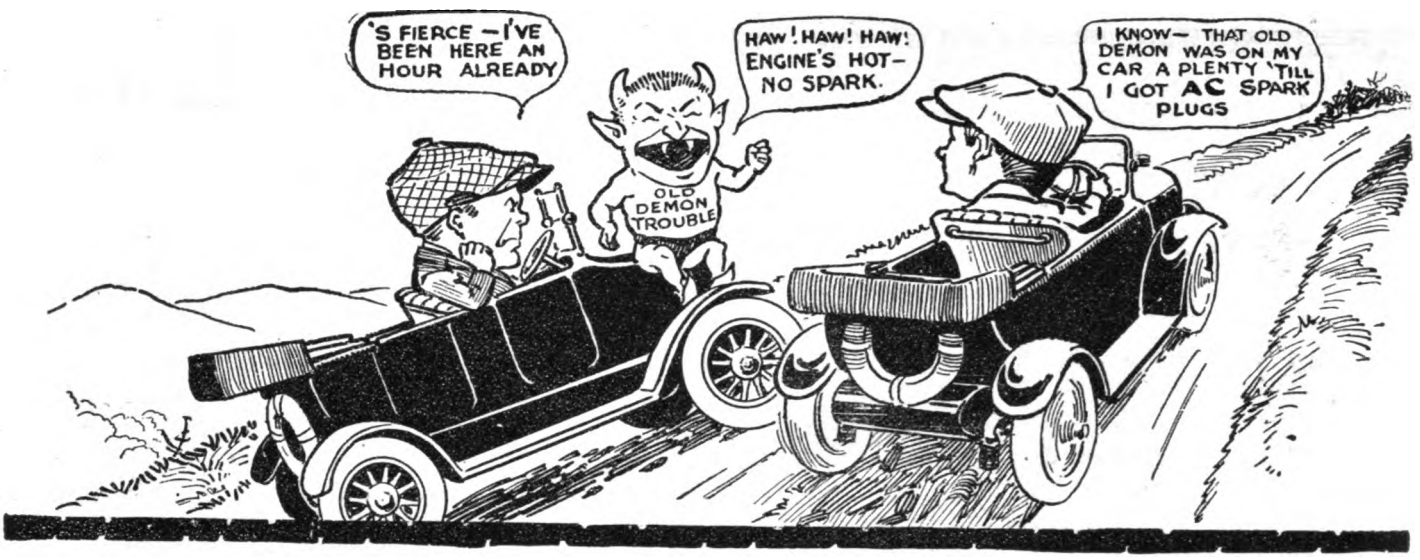


Republic
STAGGARD
PAT. SEP. 15-22-1908
Tread

Maximum Grip with Minimum Friction

REPUBLIC TIRES

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These Manufacturers Use AC as Standard Equipment

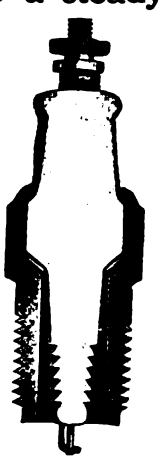
Cadillac
Pierce-Arrow
Packard
Marmon
Hudson
Chalmers
Hupmobile
Chandler
Haynes
Chevrolet
Locomobile
Disbrow
Dorris
Dort
Cole
Reo
Paige
Peerless
Pilot
McFarlan
Paterson
Monroe
Singer
Hatfield
Case
Delco-Light
Murray
Economy
Jordan
Liberty
Jackson
Apperson
Anderson
Phianna
McLaughlin (Canada)
Gabriel Trucks
Federal Trucks
American-La France
Menominee Trucks
Wisconsin Trucks
Sandow Trucks
Stewart Trucks
Robinson Fire Truck
Buick
Oakland
Oldsmobile
Nash
Kissel Kar
Premier
Knox
White
Daniels
Wescott
Duesenberg
Lexington-Howard
Scripps-Booth
Crane-Simplex
Stearns-Knight
Saxon
Stutz
National
Velie
Stephens
Dodge Brothers
Henderson Bros
Case Tractors
Signal Trucks
Maxim Trucks
Acme Trucks
Riker Trucks
Wilcox Trux
Republic Trucks
Four Wheel Drive
Netco Trucks
Sterling Trucks
Diamond T Trucks
G.M.C Trucks
Old Reliable Trucks
Brockway Trucks
Moreland Trucks
Samson Tractors
Titan Trucks
La Crosse Tractor
Advance-Rumely Tractor
Gramm-Bernstein Trucks
Lombard Tractors

DO you know that poor insulation leaks electricity when it becomes hot? And the hotter it is the more it leaks. That is why many cars will sputter and die on hills when the same model—AC equipped—will scoot by on high.

AC SPARK PLUGS

As a progressive *dealer* you should not run the risk of injuring your trade by keeping a stock of ordinary Spark Plugs! There's such an easy way to build up a steady, satisfied patronage by simply supplying AC exclusively.

Your judgment will have the backing of all these leading engineers. Read the list and see the *national* endorsement of AC Plugs.



AC Carbon Proof For Fords Overlands and Studebakers

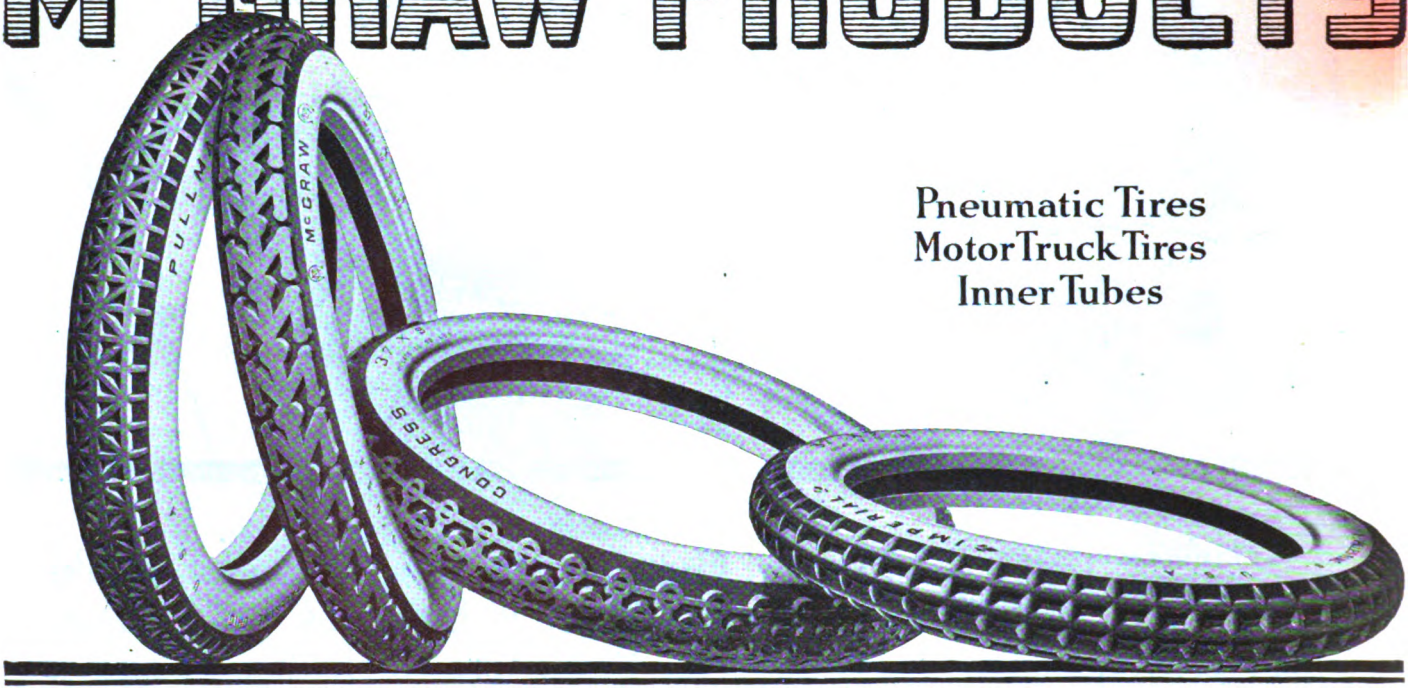
The Standard Spark Plug of America

Champion Ignition Company

Sole Manufacturers, Flint, Mich.

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McGRAW PRODUCTS



Pneumatic Tires
Motor Truck Tires
Inner Tubes



Coöperation

COÖPERATION with distributors has been a prime factor in the rapid and steady growth of the McGraw business.

In addition to an efficient field service, we maintain a merchandising department to assist dealers in making frequent turn-overs of their stocks and to enable them to develop a profitable, permanent tire business.

The McGraw system of district warehouses assures the dealer of quick delivery and efficient service from our jobbing distributors.

Let us tell you the details of our selling plan and methods of dealer coöperation and service.

The McGraw Tire & Rubber Co.
East Palestine, Ohio

Distributing Warehouses , , New York , , Atlanta , , St. Louis , , San Francisco

When writing advertisers please mention Motor World—It identifies you

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LIBERTY SIX

The LIBERTY "DIFFERENCE" A Live Asset That Defies Irregular Selling Conditions



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Why is the Liberty "Different"?

A few weeks ago Liberty distributors came to the factory in Detroit for a business conference. Every section of the country was represented—invariably by men who had long since proved their business ability.

Without exception these men expressed their belief in the principles actuating the Liberty Company—the old-fashioned idea of honesty and fair-dealing. One and all recorded their conviction that the Liberty had proved itself *different*.

The Dealer's Question

Finally a newcomer was asked for his opinion. "Well," he said, "I've been selling motor cars for about ten years. When I was told that the Liberty was different —frankly, I didn't believe it. I didn't think any car would show me anything that was different.

"I got into the Liberty. Before I had gone a mile I realized that the Liberty *did perform differently*. And now I'd like to ask President Owen one question: *Why is the Liberty different?*"

Here is Mr. Owen's Answer

"The Liberty is different because we deliberately started out to make it different. We decided that there was a virgin field for a high grade car of moderate size and modest price that would meet all the requirements of those accustomed to the best in motoring.

"The car was first modeled life-size in wax. Then exhaustive investigations determined exactly where the positions of the clutch, the steering wheel, the brake, and the seats should be for the average person to handle the car with ease and to ride in it with comfort. The spring balance was designed so that one to five people could ride with equal comfort in the Liberty.

"We succeeded, partly because we knew exactly what we wanted to attain before we started; because we have consistently held to our original purpose; because our directors and stockholders include some of the best brains and experience in the industry."

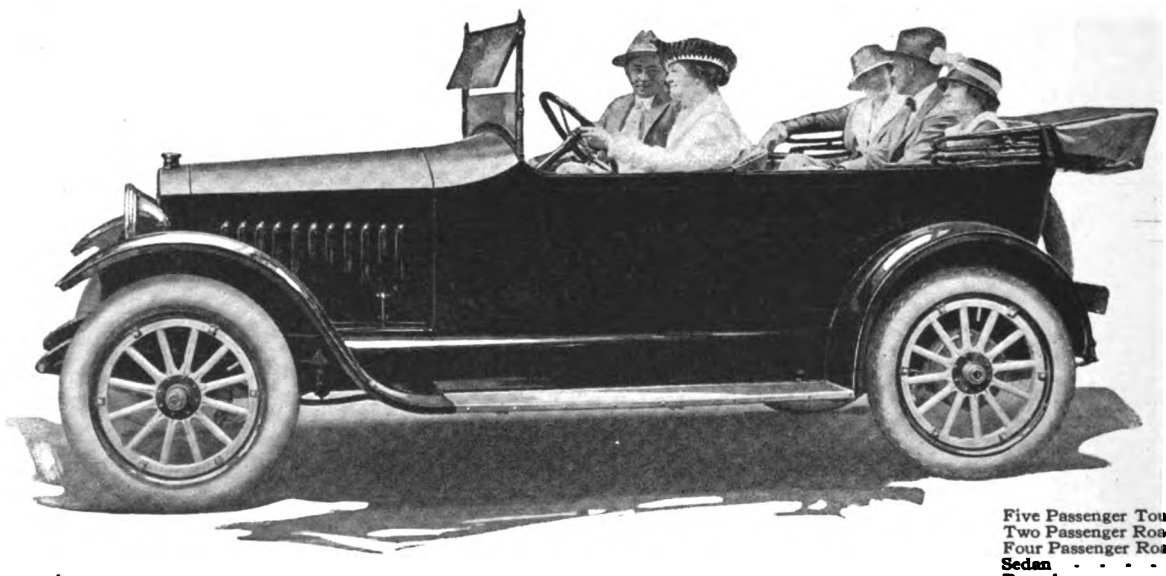
It is a fact that there is a difference in the way the Liberty rides and drives.

And the number of people who believe this fact is exactly the number that have driven or ridden in the Liberty.

It is hard to tell you of the Liberty difference.

It is easy to show you—and to show why this difference is an asset that sweeps aside ordinary sales obstacles and lifts the Liberty dealer above the dead level of competition.

Liberty Motor Car Company, Detroit

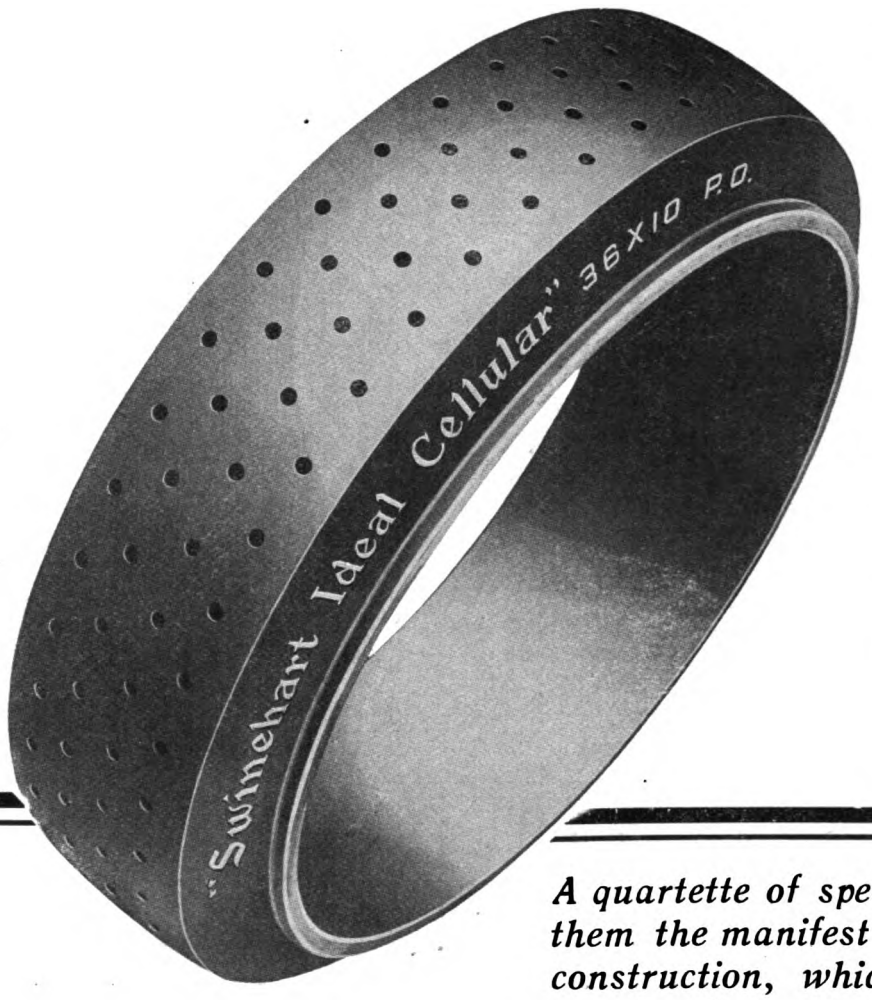


Five Passenger Touring	$1350.00
Two Passenger Roadster	1350.00
Four Passenger Roadster	1350.00
Sedan	1925.00
Brougham	2700.00
Landaulet	2700.00

(F. O. B. Detroit)

LIBERTY SIX

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4 Points of Swinehart Cellular Truck Tire Superiority which are of vital importance to Dealers

A quartette of special features, three of them the manifest result of the cellular construction, which make this tire of great and growing profits.

The patented cellular construction is scientific and logical. In contact with the ground the holes are closed preventing the picking up of pebbles and dirt.

1— 40% more resiliency than ordinary truck tires, a shock absorbing feature which makes possible greater speed and less strain on the truck and its vital parts.

2— A ventilating of the tire which positively eliminates heating and insures extended tire life.

3— A better grip on the ground which provides greater traction and prevents skidding. It is the only non-skid truck tire known.

4— Over an inch more of thickness, in real, live, burly rubber, than ordinary tires, which further prolongs the tire life and augments the shock absorbing feature.

Swinehart

IDEAL CELLULAR TRUCK TIRES

Mean greater mileage, lower up-keep, and a minimum of truck repairs.

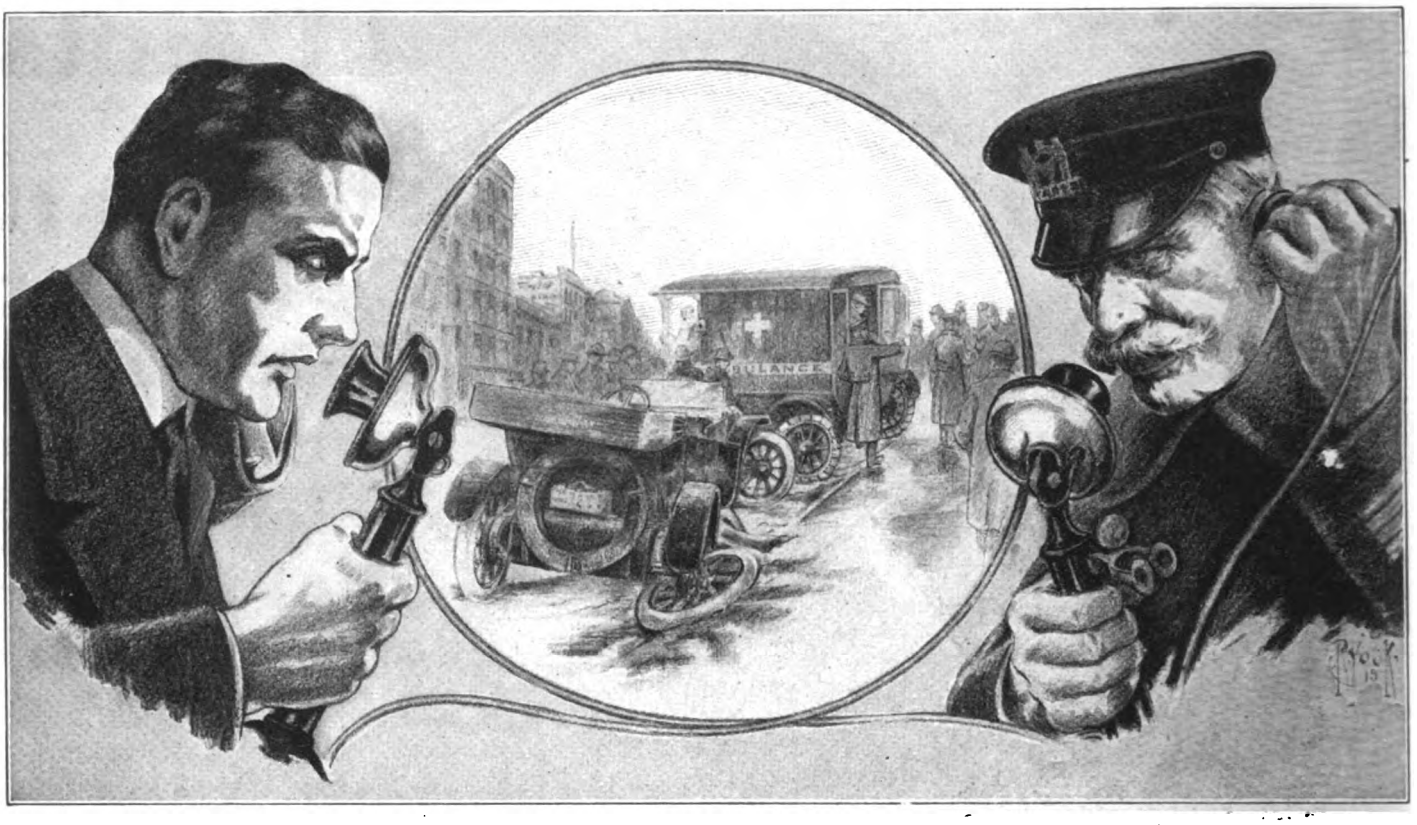
There are various other types of Swinehart new Ideal Truck Tires, all of which have the extra thickness feature and are built to the same Swinehart high standard of quality and workmanship. "Swinehart Truck Tires cover the requirements for every capacity of truck or service," is a fact—not a prediction.

Up-to-date Dealers: Write to-day for prices and liberal trade discounts

THE SWINEHART TIRE & RUBBER COMPANY, Akron, Ohio

Distributing points in the principal large cities

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"What! My Car?"

"Yes! skidded—and it's up to you. You failed to provide the chauffeur with Tire Chains. Only good luck saved your wife from paying the supreme penalty for your negligence. She's on the way to the hospital painfully injured, but the doctor thinks she'll pull through. You'd better hurry to the hospital and then report to headquarters."

How strange it is that disaster must come to some men before they realize that all makes and types of tires will skid on wet pavements and muddy roads when not equipped with Chains.

These men do not appreciate until too late, that by failing to provide Weed Anti-Skid Chains they expose their families to injury and death.

The time to provide against accidents is before they happen. Don't wait until after the first skid. Put Weed Chains on all four tires at the first indication of slippery going and you will have quadruple protection against injury, death, car damage and law suits.





Weed Chains are Sold for All Tires by Dealers Everywhere

American Chain Company, Incorporated

BRIDGEPORT, CONNECTICUT

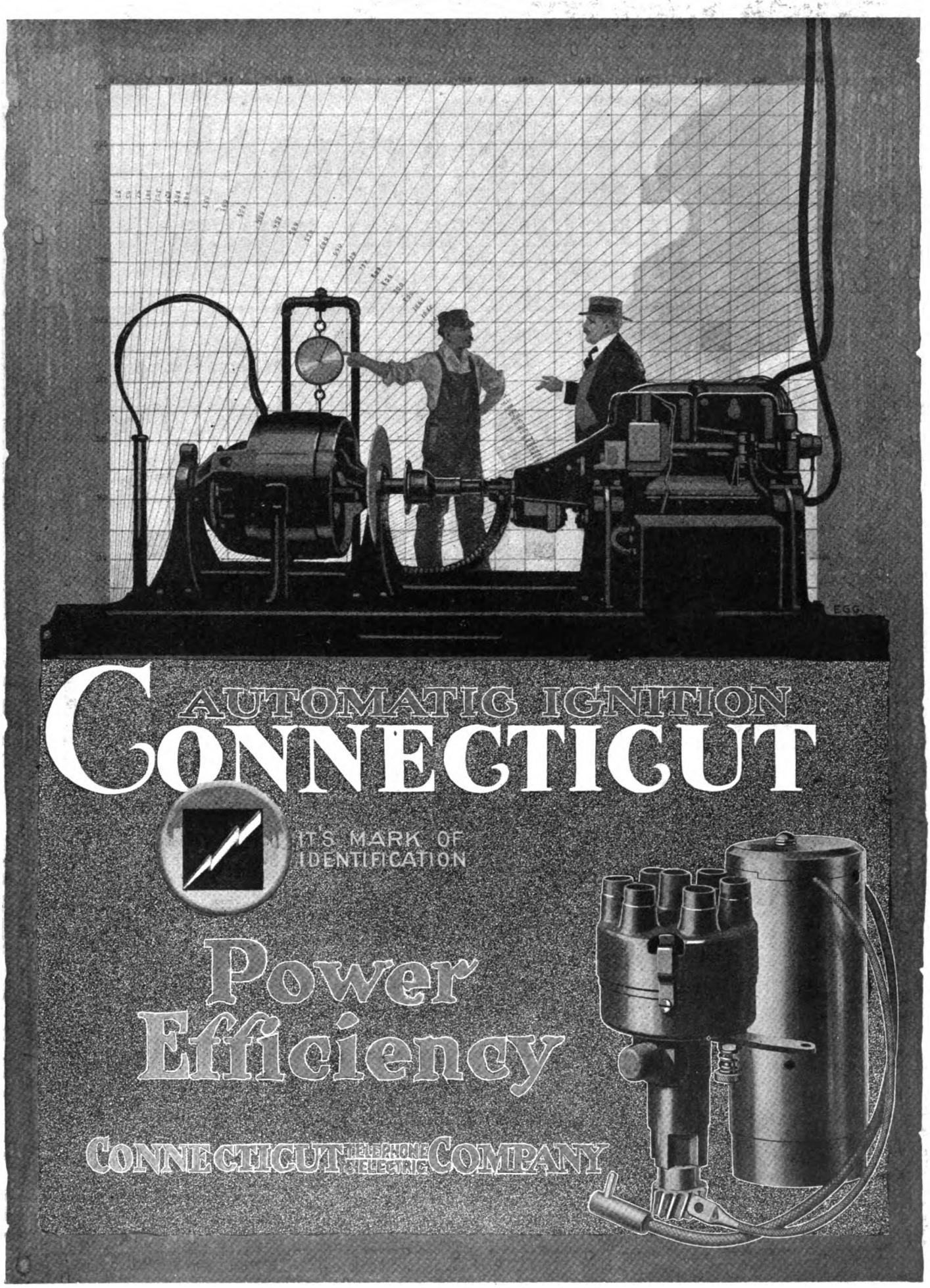
IN CANADA; DOMINION CHAIN COMPANY, LIMITED, NIAGARA FALLS, ONTARIO.

A·C Co

A·C Co

The above is one of a series of Weed Tire Chain advertisements **appearing in magazines with a combined circulation of over 5,000,000. Send a post card to the American Chain Company for advertising material for your counter and windows; also for the names and addresses of the nearest jobbers in your vicinity who stock Weed Tire Chains.**

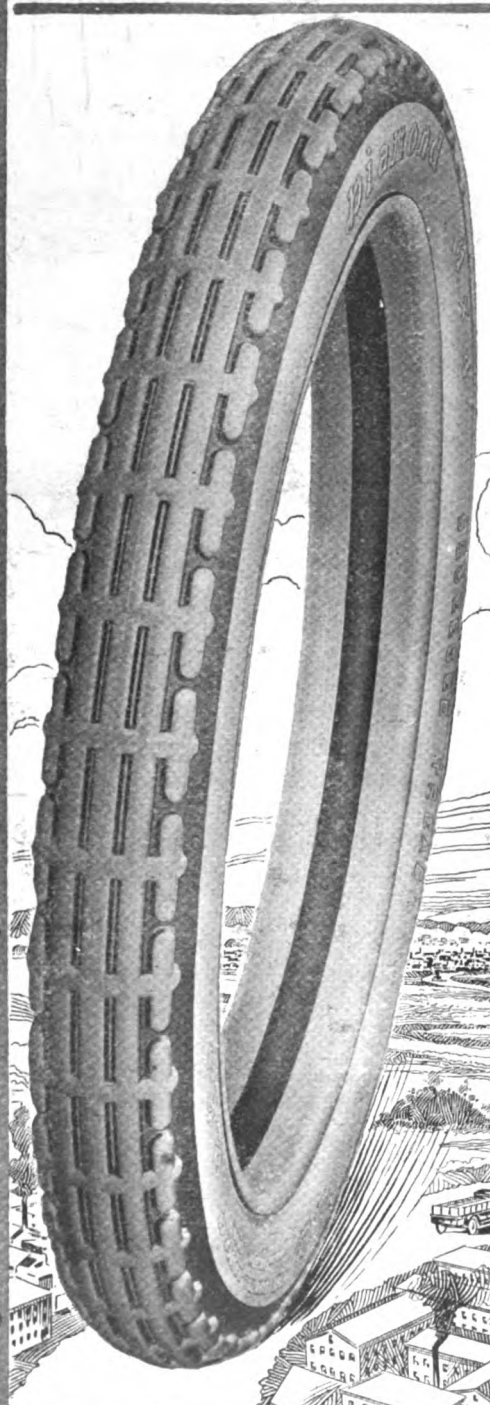
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When writing advertisers please mention Motor World—It identifies you

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Diamond
SQUEEGEE TREAD TIRES



Practical tire equipment
for inter-town motor service

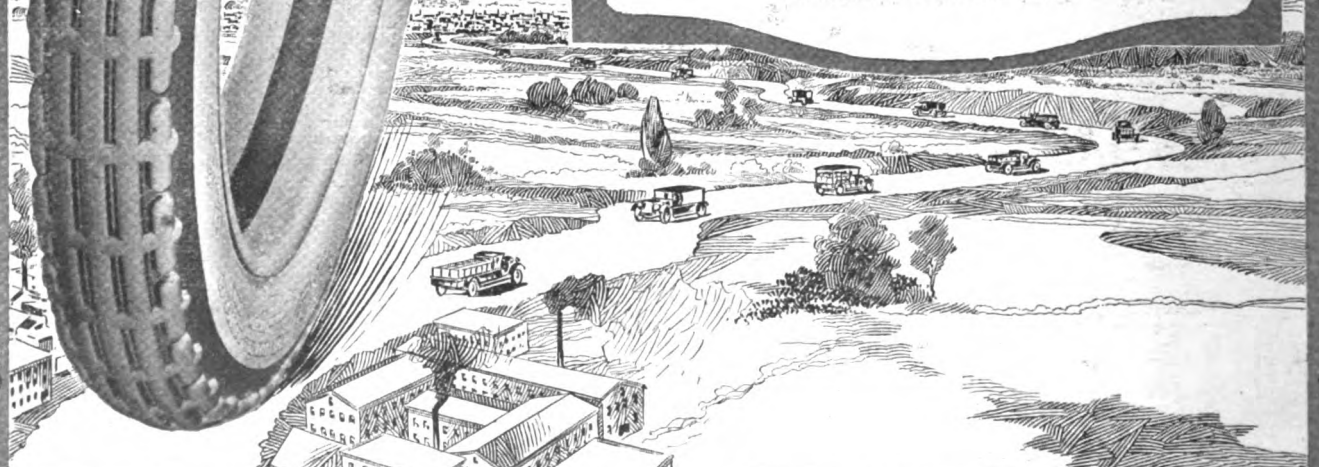
MOTOR cars must transport commodities from town to town this summer as never before.

Demand will be, not for luxury, high-priced, "feature" tires, but for *practical*, long-mileage, low-cost tires that are *dependable.*

Dealers who are preparing now to meet the resulting demand for Diamond Tires will be in a most advantageous position.

Experienced motorists always use Diamond Inner Tubes. They are commonly outwearing four to six casings—even cars themselves.

The Diamond Rubber Co.
(Incorporated)
Factories: AKRON, OHIO



"BETTER THAN AVERAGE MILEAGE - AT LESS THAN AVERAGE COST"

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DEARBORN TRUCK UNITS
Make Any Car a Truck

One Ton—Two Ton

Dearborn Truck Units can be attached to any make of car, converting it into a motor truck of one or two-ton capacity. You are no longer confined exclusively to the Ford.

The demand for trucks this spring will be beyond the ability of truck builders to supply. This means a big business for dealers in converting pleasure cars of all types into motor trucks.

Dearborn Truck Units are time-tried and proven. They have been successfully attached to over 60 different makes of cars. They are not an experiment. The Dearborn Truck Company is a sound, successful company operating its own plant.

Dealers—Write Now

Dealers should write at once for proposition, full particulars and specifications. The Dearborn offers you a wonderful opportunity for a large truck business in 1918.

The Dearborn Truck Company
1260-74 S. Campbell Avenue
Chicago, Illinois



Dearborn Two-Ton Unit attached to Packard Chassis



Dearborn One-Ton Unit attached to Overland Chassis



Dearborn Two-Ton Unit attached to Mitchell Chassis



Dearborn One-Ton Unit attached to Dodge Chassis



Dearborn Two-Ton Unit attached to Cole Chassis



Dearborn One-Ton Unit attached to Hupmobile Chassis



Dearborn Two-Ton Unit attached to Glide Chassis

$350 One-Ton Unit for Ford

$400 One-Ton Unit for Any Car

$450 Two-Ton Unit for Ford

$500 Two-Ton Unit for Any Car



Rear View, showing Dearborn Universal Two-Ton Truck Unit attached to Mitchell Chassis



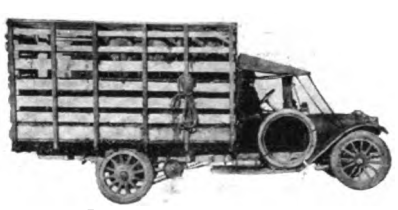
Dearborn Two-Ton Unit attached to Cadillac Chassis



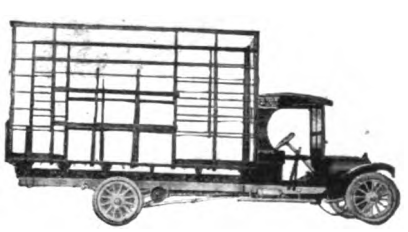
Dearborn Two-Ton Unit attached to Chalmers Chassis



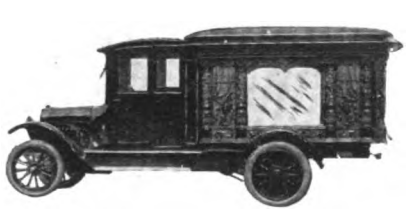
Dearborn Two-Ton Unit attached to Hudson Chassis



Dearborn One-Ton Unit attached to Buick Chassis



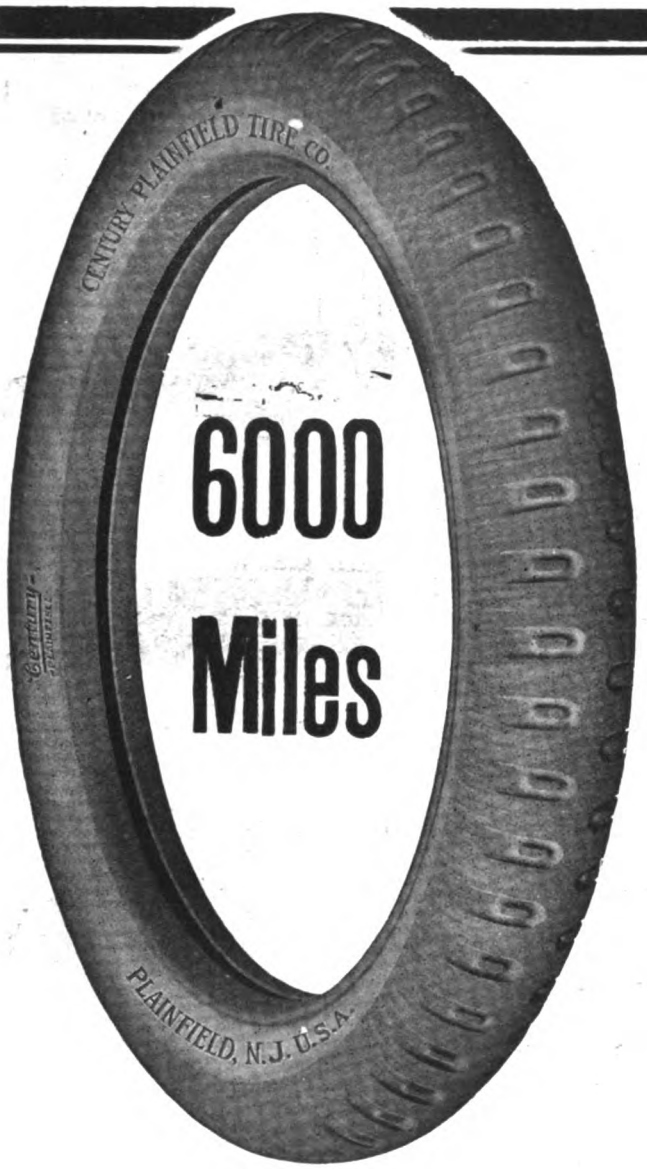
Dearborn Two-Ton Unit attached to Buick Chassis



Dearborn One-Ton Unit attached to Maxwell Chassis

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The Tire That Goes Out and Gets Business



Every time you sell a Century-Plainfield Tire you're sending out a salesman.

The man who bought comes back—certainly—he's a booster, but better yet—his friends come, too.

Century-Plainfield popularity is founded on performance. They have an inbuilt capacity to negotiate extra miles. Under all conditions they give the very limit of wear.

"Quality First"—that's the Century-Plainfield slogan and on that formula they're built.

The very finest quality of materials in the world go into their makeup and these are combined and fashioned into shape by time-seasoned experts.

No whit of anything that would make for better tires has been neglected.

Century-Plainfield agencies may be secured by high class dealers—and with the privilege of handling this great line will go the complete co-operation of the Century-Plainfield organization and an opportunity for generous and continued profits.

CENTURY-PLAINFIELD TIRES

CENTURY-PLAINFIELD TIRE CO.,

Century-Plainfield Tire Company, a subsidiary of the Rubber Insulated Metals Corporation, Exclusive manufacturers of the RIMCO Rubber Products by the EL-CHEMCO process.

Plainfield - - - - - - - - - New Jersey

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Shurnuff TRADE MARK COMBINATION MANIFOLD Will Help Your Ford DO ITS BIT



Manifold Installed on Ford Engine

Gasoline will be a big factor in winning the war. Conserve the gasoline output by getting power from every drop you use. Make your Ford "Hooverize" by installing the *Shurnuff Combination Manifold.*

Most of the gasoline on the market today is blended with heavier hydrocarbons which are less volatile and which cannot be thoroughly vaporized in the carburetor. A fog of gasoline enters the cylinders which does not explode properly. The unexploded gasoline is deposited on valves, piston heads and cylinders as carbon which causes leaky valves, loss of power, loss of oil and fuel, overheating and misfiring.

The *Shurnuff Combination Manifold* prevents these excessive carbon deposits and saves fuel by utilizing every drop of gasoline. It is a one-piece casting, combining intake and exhaust in such a way that the exhausted or fired gases pass over the intake, thus drying the incoming gasoline and vaporizing it properly before it enters the cylinders. A smoother running and more powerful motor is the result.

The *Shurnuff Combination Manifold* is especially recommended for cold weather driving as it keepes the carburetor warm for a considerable length of time after stops and thereby starting is made easier.

The *Shurnuff Combination Manifold* can be attached to any Model T. for motor in less than an hour. No special tools required.

Price	**$ 9.00**
West of the Rockies	**10.00**
In Canada	**12.50**

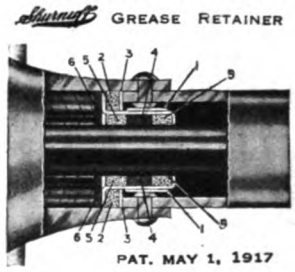
Other Shurnuff Necessities for Ford Cars



Shurnuff Running Board-Fender Support Stops Sagging of Running Board, Eliminates Excessive Vibration of Front Fenders, Reduces Shocks and Stabilizes your Ford. Consists of two metal supports, one end of which is fastened to the frame by a lug and the other under the front section of the running board at the point where front fender and running board connect.

Price, per pair	**$4.50**
West of the Rockies	**4.75**
In Canada	**6.75**

Shurnuff GREASE RETAINER



PAT. MAY 1, 1917

Grease leaks in the rear axle of Ford Cars cause brakes to lose their efficiency, tires to decay and dust to collect on axle housing, brake drum and wheel.

Shurnuff Grease Retainers effectively stop these grease leaks.

Price, per pair	**$0.90**
In Canada	**1.35**



The Shurnuff Windshield Ventilator gives the Ford windshield all the ventilating features as well as dust and rain protection that are found in high priced cars. Rain proof at sides, top and bottom. Used in connection with the standard Ford windshield.

Price, per pair	**$7.50**
West of the Rockies	**7.75**
In Canada	**11.25**

Shurnuff Mfg. Co.

Dept. B. St. Louis, Mo.

Shurnuff Products are Sold by more than 300 Jobbers.

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REO
"THE GOLD STANDARD OF VALUES"

The Wise Dealer Ties to a Manufactured Product

BY "MANUFACTURED" we mean, of course, a line of automobiles or motor trucks, every important unit of which is made in the shops of the concern whose name plate it bears.

IF ANY UNIT—motor, transmission, clutch, axle, steering gear—is made in a shop not controlled by the maker of the car, you never can tell—because he never can tell—where you will be at from year to year.

NOR CAN YOU BE SURE of the uniformity of any such product.

OF COURSE if you are one of those dealers who habitually change from season to season—depending on "cleverness" in selling a product you know will not stand up and on which you never intend to give service after the initial period—

IN THAT CASE you are not interested in the permanency of the car—nor are we interested in you!

THE ONLY KIND of dealer that can ever hope to handle the Reo line is one who looks far ahead—whose ambition is to build up a permanent business with a reputation underlying it.

AND ONLY THAT KIND—for we know the quality of the Reo product—we make every part and so can and do back it with the Reo guarantee.

NO, WE DIDN'T SAY there was an opening anywhere.

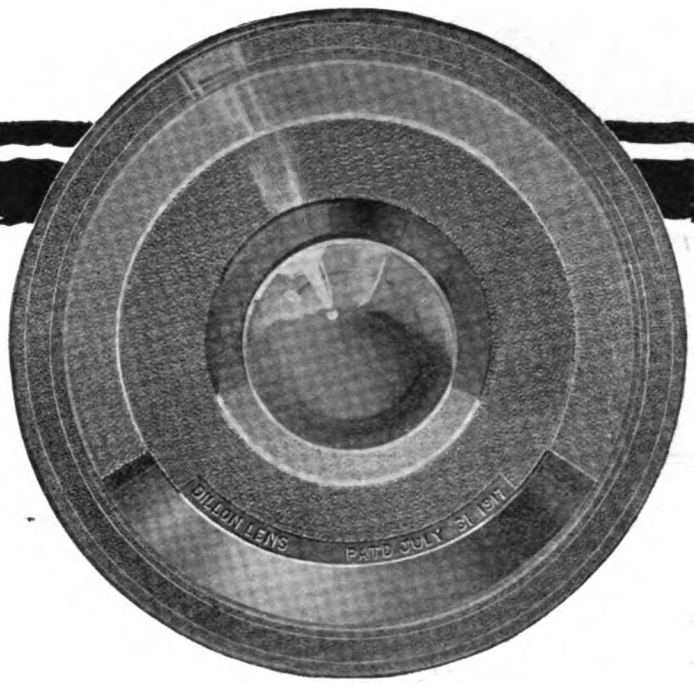
OUR PROBLEM now is not to get dealers to handle the Reo line—but to supply enough cars and trucks to our present dealers.

BUT WE DID SAY "Those who look far ahead"—and if you are one of those, your best plan would be to write us, get your application on file—'twill be treated confidentially of course—and then should there be a change in your territory, you'd be in line for the plum.

Reo Motor Car Company

Lansing, Michigan

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THE bull's-eye in the center concentrates and magnifies a long-range stream of light, which is deflected below eye level by the reflected light from the clear glass immediately above. The mottled glass diffuses a wide path of light, while the bottom portion of clear glass provides necessary side and front lighting.

$3.50 A PAIR

Any Size Anywhere in U. S. A.

Be Sure Your Lens Is Perfectly Adjusted!

TOO often a lens is blamed for poor performance when it is not the fault of the lens but of its adjustment.

You may argue that some lenses require no adjustment, but while this is claimed as a virtue by some lens manufacturers it is often a very real weakness.

The Dillon Multi-Vision is so designed that it gives perfect results only when perfectly adjusted. But you should remember that it is constructed on **definite scientific principles**—and, moreover, that it is quickly and easily adjusted.

Once adjusted, it cannot turn loose in the rim, and it gives permanent and uniformly dependable service day in and day out. The Dillon is the SAFEST lens in America—a statement that remains unchallenged, whether judged from the standpoint of the law or the viewpoint of the motorist.

Dealers: Play safe with your reputation. Sell the Dillon, satisfy your trade and increase your general business. See your jobber. Or write. Use the coupon below.

NATIONAL DISTRIBUTING BUREAU INC.

Exclusive Dillon Lens Distributors

241 Oliver Building
Pittsburgh, Pa.

Pittsburgh

DILLON MULTI VISION LENS

MAIL THIS COUPON

NATIONAL DISTRIBUTING BUREAU, INC.
241 Oliver Bldg., Pittsburgh, Pa.

NAME.....

ADDRESS.....

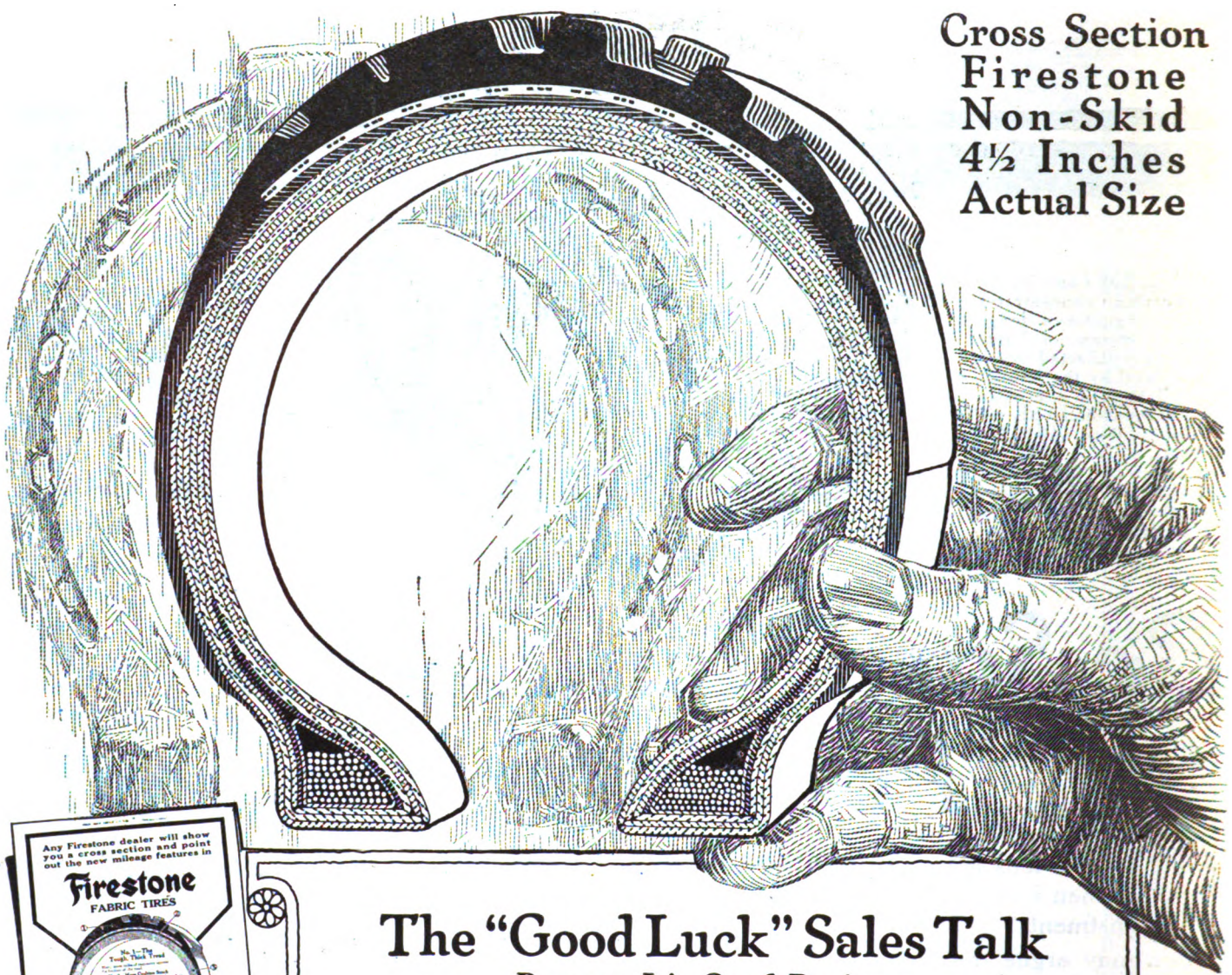
JOBBER.....

JUST SIGN AND WE WILL SEND PARTICULARS

When writing advertisers please mention Motor World—It identifies you

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Cross Section
Firestone
Non-Skid
4½ Inches
Actual Size









The "Good Luck" Sales Talk

Because It's Good Business

SHOW your customers a Firestone section. Tell them the Firestone facts. Explain the advantages of:

Extra Tough Tread — More Rubber Between Layers
Thick Cushion Stock — Reinforcement in Sidewall

You'll find that sales come quick and often. Your sales efforts are "lucky" because they are founded on actual constructive advantages. Build big business, sure business, repeat business, by putting Firestone superiorities before the motorists of your community.

Tell them why both Firestone Fabric and Cord Tires produce MOST MILES PER DOLLAR and you'll find a ready response in interest and sales. Try it. Write for Firestone facts, sales aids and advertising helps.

FIRESTONE TIRE AND RUBBER COMPANY
Akron, Ohio — Branches and Dealers Everywhere

Firestone

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Every Truck Owner a Prospect

With hauling problems becoming more acute, with labor shortage growing worse, with greater need for motor trucks—not only for local city work, but for use between towns and cities—*right now* is the *Big Opportunity* for the dealer, in

WATSON UNIVERSAL SERVICE TRAILERS

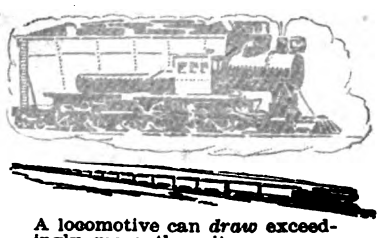
Every truck owner in your community is a potential buyer! With a little attention on your part and the extensive, practical selling help we offer, you can sell a good number of Watson Trailers with comparative ease and make *real money* on the Agency. And when you sell a *Watson* you sell *motor* equipment, built for *motor speeds.*

By all means *get the facts.* The tide is rising, the time is ripe! It costs nothing to learn the full details of the Watson Agency. We have a very interesting proposition for the responsible dealer in territory still open.

INVESTIGATE—WRITE

WATSON WAGON CO.

40 W. Center St. **CANASTOTA, N. Y.**



A locomotive can *draw* exceedingly more than it can *carry*

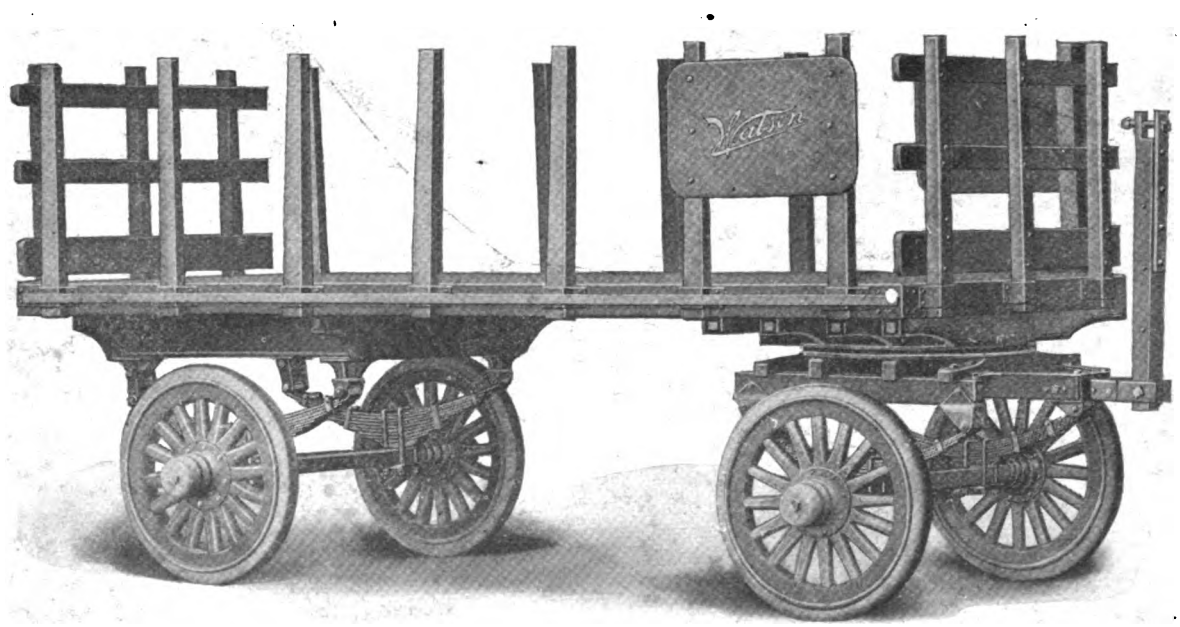


A tug boat can *draw* tonnage that requires a big steamer to *carry*

100% WATSON Tractortruck



The principle of the locomotive embodied in a strong and powerful tractortruck—that can *draw* tremendous loads. Flexible, economical equipment that can do the work of three trucks. Investigate.



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The MUNGER "Always Tight" expansion joint

MUNGER "Always Tight" Piston Rings

List price for all sizes up to 3¾ in. diameter, $1.25 per ring.

With each complete set of rings a MUNGER PISTON RE-GROOVING TOOL and a MUNGER RING INSERTION TOOL are supplied without extra charge.

See the wonderful "Always Tight" Expansion Joint!

It *permanently* prevents the waste of power.

By a patent process of peening Munger "Always Tight" Piston Rings are made to fit the walls of the cylinder, and the Expansion Joint makes them gas-tight until completely wornout.

Another distinctive feature of these rings is the ease with which they can be installed. Slip them over the Munger Ring Insertion Tool and they slide into their grooves without breakage or trouble of any kind.

The *oversize* rings and the Munger Re-grooving Tool included with each complete set of rings makes it possible to true-up worn grooves quickly and accurately, and fit them perfectly without expensive lathe work and without even disconnecting the piston from the connecting rod. This is a saving every repair man and car owner will appreciate.



Ready to insert the Munger Re-grooving Tool to true-up a worn piston groove



The Munger Re-grooving Tool in position for cutting. Testing width of groove with an overwidth ring



A Munger "Always Tight" Piston Ring being slipped over the Munger Ring Insertion Tool



Showing how easily Munger "Always Tight" Piston Rings can be placed in the piston grooves with the Munger Ring Insertion Tool

SPLITDORF ELECTRICAL CO.

Newark, New Jersey

Splitdorf Branch Houses & Service Stations:

Atlanta,	10-12 E. Harris St.	Minneapolis,	816 Hennepin Av
Boston,	68 Brookline Ave.	Newark,	278 Halsey St
Chicago,	64 E. 14th St.	New York,	7 West 61st St
Dallas,	402 S. Ervay St.	Philadelphia,	210 N. 13th St.
Detroit,	1295 Woodward Av.	Pittsburgh,	5963 Ellsworth Av.
Kansas City,	1827 Grand Av.	San Francisco,	1022 Geary St.
Los Angeles,	1215 S. Hope St.	Seattle,	1628 Broadway
		Toronto,	469 Yonge St.

Accessory Dealers and Garage Men!

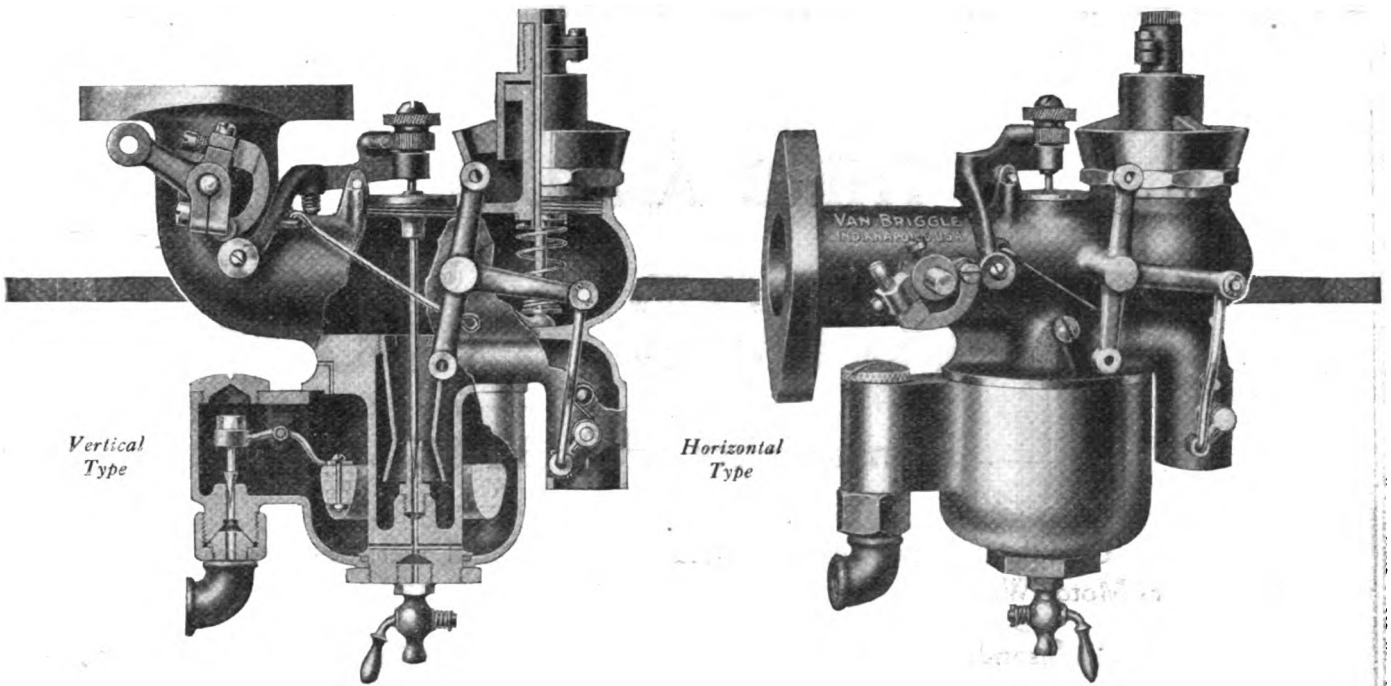
Any jobber will supply you with Munger "Always Tight" Piston Rings. Order them now!



The MUNGER "ALWAYS TIGHT" PISTON RING OUTFIT—

8 Always Tight Rings (Regular Size)
4 Always Tight Rings (Overwidth)
1 Regrooving Tool
1 Ring Insertion Tool

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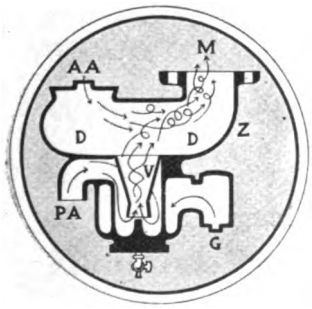


VAN BRIGGLE CARBURETOR

Just One Principle for all Motors

THE principle of carburetion is *always* the same in every Van Briggle Carburetor—regardless of the make, number of cylinders, or type of motor on which it is used. Thus, uniformly good results are always secured. The Van Briggle delivers more power—more speed—with less fuel—and gives *instant* starting in coldest weather. There's a Van Briggle for almost every make of motor. Illustrated descriptive booklet sent free on request. Send for it. ¶DEALERS AND JOBBERS: The Van Briggle is as easily handled as tires. New opportunity for profit and service. Write for proposition.

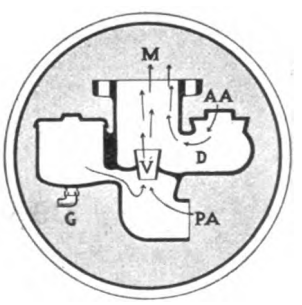
KEY TO DIAGRAMS: PRIMARY AIR (P. A.); AUXILIARY AIR (A. A.); GASOLINE (G.); MANIFOLD (M.); MIXING CHAMBER (D.); VENTURI TUBE (V.); LOCATION OF MANIFOLD ON HORIZONTAL TYPE (Z.).



The Van Briggle Way

EXPLANATION OF DIAGRAMS

Because of the peculiar construction of the Van Briggle's primary air chambers, the primary air enters the venturi tube in a whirling, swirling movement, breaking even the poorest gasoline into the most minute particles. The primary mixture then enters the mixing chamber. The auxiliary air, traveling across to the manifold MUST PASS THROUGH THE PRIMARY MIXTURE. Two mixtures are thus assured in the Van Briggle Carburetor—each thorough and absolute. A thorough mixture and complete vaporization mean EVERYTHING to your motor. Compare the Van Briggle Way with The Other Way. There *is* a difference!



The Other Way

VAN BRIGGLE MOTOR DEVICE CO.
429 North Capitol Avenue INDIANAPOLIS, INDIANA

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THIRD ANNUAL
TRACTOR SHOW
Kansas City, Feb. 11-16

Complete report will be carried in Feb. 13 and successive issues of Motor World.

Thousands of dealers who are Motor World subscribers are interested in farm tractors. They will depend upon Motor World to supply them with complete information covering features of general and particular interest in connection with the Kansas City tractor show. And they will also depend upon Motor World to guide them in the selection of tractor agencies during 1918.

Motor car dealers are going to sell tractors. Tractor manufacturers should take immediate and serious cognizance of the car dealer's ability to sell and to give service to their product. Manufacturers should recognize that car dealers with efficient selling and service departments are their most logical distributors.

Tractor manufacturers who make their appeal through Motor World will save a vast amount of lost motion. They will travel the shortest distance between two points.

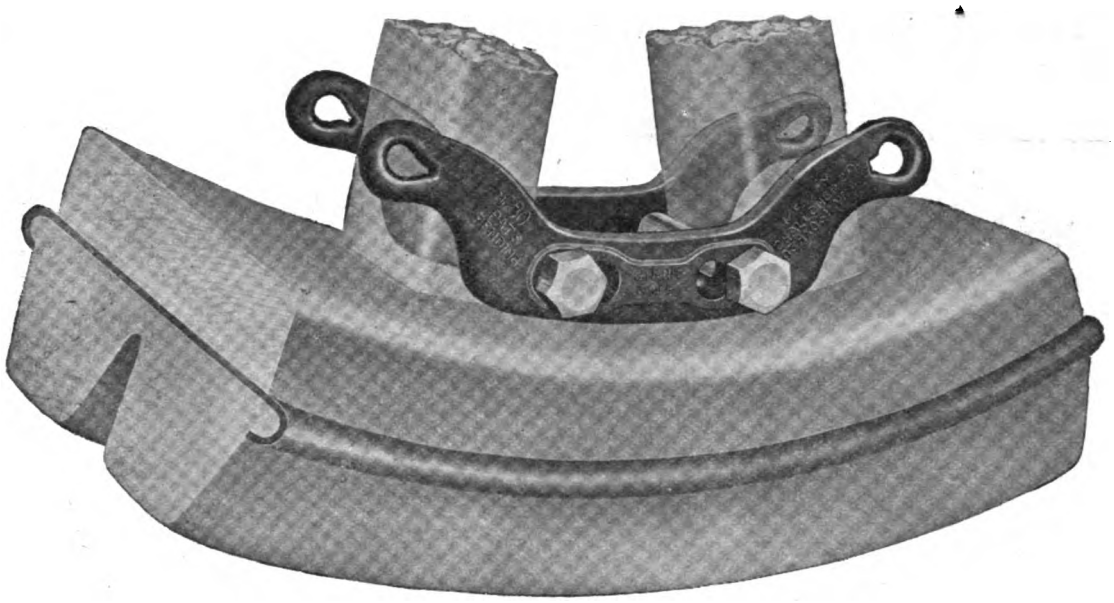
Our Research Division has just completed a wealth of data that every tractor manufacturer should have. It will prove of particular interest to those manufacturers who are asking: "What class of merchandisers is best qualified and equipped to successfully distribute farm tractors?"

We will be glad to co-operate with those manufacturers who are willing to take advantage of our research and analysis. Address

MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

239 W. 39th St., New York City **Mallers Bldg., Chicago**

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Challoner Company

Manufacturers of

Giant Grip

Non-Skid Chains

for Motor Trucks

Announce—

The Twin Clamp

(No. 80)

The TWIN CLAMP No. 80, means the elimination of enormous stocks of special sizes and styles of clamps and chains.

Now a small assortment of different sized clamps and chains, and a stock of TWIN CLAMPS will enable you to equip over 400 different trucks.

Write for illustrated literature and complete details.

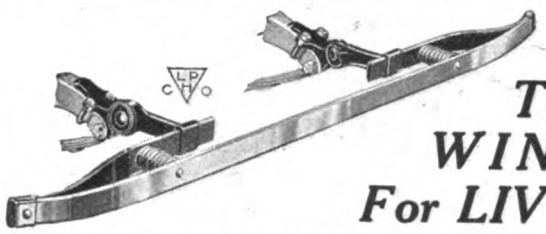
CHALLONER COMPANY

Hancock Street **Established 1863** **Oshkosh, Wisconsin**

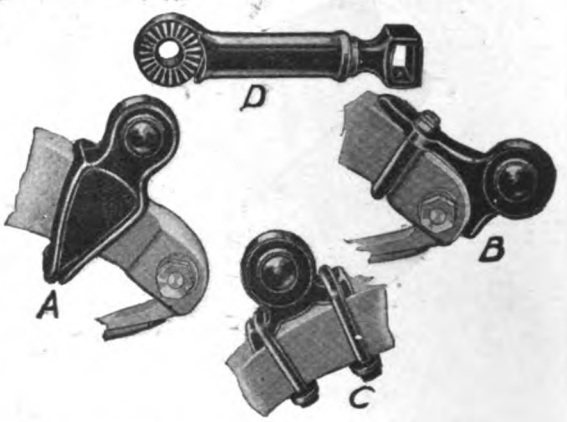
It isn't a TWIN CLAMP until branded Giant Grip

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HALLADAY BUMPERS



Two Big
WINNERS
For LIVE Dealers



MULTIPLE SPRING BAR BUMPER

The last word in bumper efficiency.
Supplied with all HALLADAY fittings for all cars.
Shock absorbing, noiseless, unbreakable.

HALLADAY STANDARDIZED UNIT

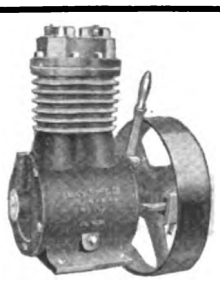
Solves the bumper problem by enabling the dealer to fit practically all cars with a stock of only four parts.

Write for new catalog fully describing the HALLADAY line

L. P. HALLADAY COMPANY, Streator, Illinois

DISTRIBUTORS: Asch & Co., 16-24 W. 61st St., New York City; E. L. Thompson Co., 817 Boylston St., Boston, Mass.; Gray-Heath Co., 1440 Michigan Ave., Chicago, Ill.; Sanford Brothers, Chattanooga, Tenn., Southern Distributors; Hughson & Merton, Inc., San Francisco, Los Angeles, Portland and Seattle, Pacific Coast Distributors.

BRUNNER

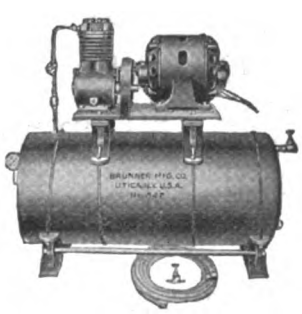


The Brunner Garage Air Compressor has been consistently demonstrating its sterling worth in the garage ever since the garage business has been a business.



BE FAIR WITH YOURSELF, MR. GARAGEMAN—

Don't go off half-cocked when you buy your new air compressor. Give the selection of your new air compressor the careful attention it deserves. It will pay you to devote some time to this matter.



YOUR SUCCESS DEPENDS ON THE SERVICE YOU RENDER—

and your compressed air service is just as important as any part of your service. Possibly more so. Ask your neighboring garageman if he has a piece of equipment in his garage that has proven more satisfactory than his Brunner Air Compressor.

INVESTIGATE THE BRUNNER AIR COMPRESSOR

We will be glad to send you our new No. 15 Catalog and the name of the Brunner Jobber covering your territory and our engineers will be glad to assist you in solving your compressed air problems whether or not you contemplate the purchase of Brunner Equipment.



"Tell your compressed air troubles to Brunner"

BRUNNER MANUFACTURING COMPANY

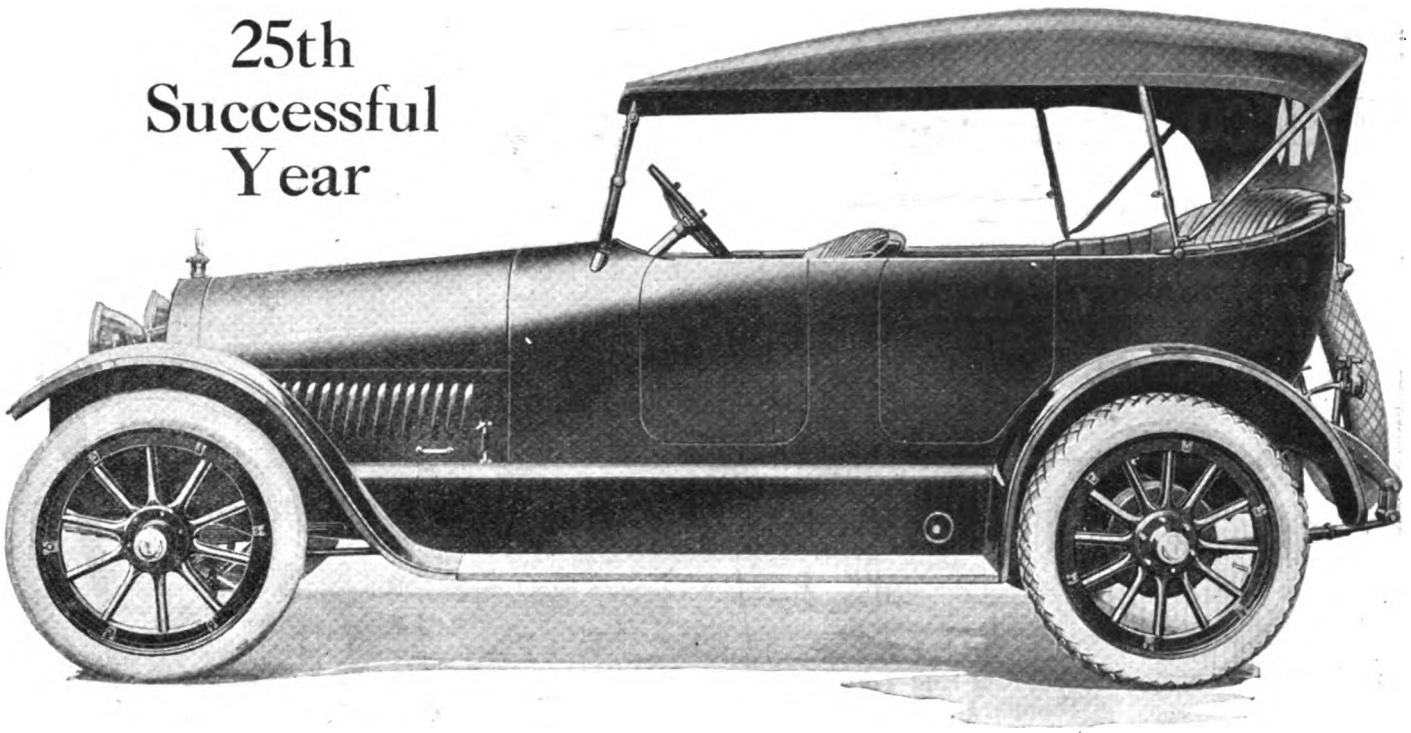
Main Office and Plant:
UTICA, N. Y.

Cincinnati Branch:
CINCINNATI, OHIO



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25th Successful Year



The New Haynes Open Car for Five

HERE'S one of the smartest, easiest-riding cars for a small family that 1918 has witnessed.

Front springs measure 39x2¼ inches. Rear springs are 58x2¼ inches. Their length, width and resiliency, their flatness under load, and the automatic oiling feature on rear springs, is evoking much praise. The wheelbase is 121 inches.

The hood is high-arched and broad. The lines are straight. The windshield has a rakish tilt. There is a double cowl. The fenders are wheel-form.

Six-inch side frames insure rigidity.

Finishes are beige brown, royal green and deep carmine. Upholstery is French pleated leather. There is a tonneau lamp.

The high-powered, speedy Haynes "Light Six" engine propels this car. So successful is this engine that in July it will pass its fourth birthday practically without change.

—The new 1918 Haynes Line includes 11 fine models, 6 for the "Light Six," 5 for the "Light Twelve." The beautiful Haynes national advertising of 1917 is being continued. In addition the dealer receives liberal local newspaper advertising co-operation. The 1918 Haynes catalog is a beauty. Send for a copy and our live offer to live dealers. Address

THE HAYNES AUTOMOBILE COMPANY

70 S. Main St., Kokomo, Indiana, U. S. A.

HAYNES

"America's First Car"

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Are You Cashing In On GEMCO Advertising?

The biggest advertising drive ever put back of **Bumpers** is convincing thousands of motorists **that** Bumpers front **and rear** are a mighty good **"buy."** The result is a growing volume of **double-sale** business for GEMCO dealers—in **addition** to single sales.



(Typical Saturday Evening Post "ad" shown much reduced)

GEMCO End-Thrust Bumpers offer **you one** of the **big** opportunities of the accessory **field.**
They come in Diamond and Channel Bar **styles** to fit all cars. Write to your jobber **or** direct to

GEMCO MFG., CO. 756 So. Pierce St., MILWAUKEE, WIS.

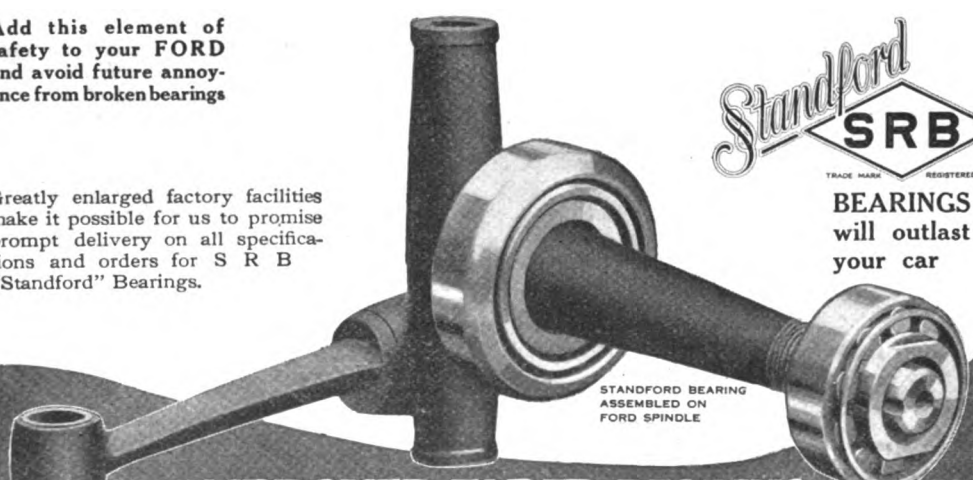


Add this element of safety to your FORD and avoid future annoyance from broken bearings

Greatly enlarged factory facilities make it possible for us to promise prompt delivery on all specifications and orders for S R B "Standford" Bearings.

Standford SRB TRADE MARK REGISTERED

BEARINGS will outlast your car









An IMPROVED TAPER BEARING for FORD Front wheels

This new member of the S R B Taper Roller Bearing family is a strictly high grade bearing in every particular—and must not be confounded with shoddy substitutes. It is produced from the highest grade of Chrome Alloy steel. It is made with the same care and precision as our regular S R B Taper Roller Bearing and will give the same high degree of service and satisfaction.

You can make the change in 15 minutes

Anyone, with the aid of a wrench, can remove the original bearings from the *Ford* car and replace them with these wear-resisting S R B "Standford" Taper Roller Bearings. No change is necessary in the *Ford* construction.

S R B is recognized everywhere as the insignia of one of the first and largest bearing manufacturers in the world, and as such wherever it appears is a guarantee of high quality.

Prices and other information on request to Service-Sales Department

STANDARD ROLLER BEARING COMPANY, Philadelphia, Pa., U. S. A.

Makers of S R B Annular Ball Bearings, Taper Roller Bearings, Steel Balls and *Rudge-Whitworth* Wire Wheels

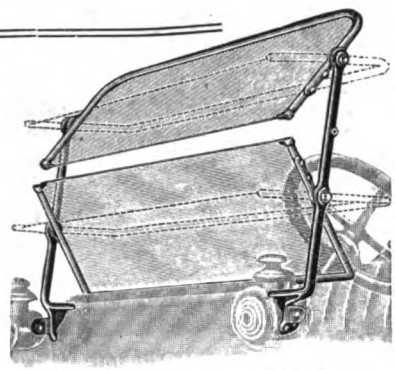
SALES OFFICES: *Detroit, Mich.*, 936 Woodward Ave.; *Chicago, Ill.*, 2206 So. Michigan Ave.; *Cleveland, Ohio*, 2062 Euclid Ave.; *Indianapolis, Ind.*, 822 Hume-Mansur Bldg.; *Boston, Mass.*, 163 Massachusetts Ave.

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Investigate This Complete Line of FORD Equipment

Jobbers and dealers can profit substantially on our enlarged line of Ford features this year.

In addition to the well-known Ospeco products previously sold, we have broadened our line with a number of other articles all of which are necessities with the Ford driver desiring to gain the greatest pleasure, service and satisfaction from his car.



OSPECO PAT. PEND

"Lawco" V-Shaped Hood and Shell

OSPECO DETROIT PRODUCTS

Ospeco-Built Ventilating Windshield



Pat. Oct. 5, '15

At the top is shown the regular Ford Windshield made full ventilating, slanting and rain-vision by the addition of Ospeco parts. Adds safety in stormy weather, ventilates the front seat and keeps feet cool in summer.

At the left is illustrated the famous Lawco V-shaped Hood and Shell which brings old Fords up to date and adds a distinctive appearance. A big improvement over the regular 1917 Ford Hood.

We also make the Ospeco Automatic Headlight Control, Irreversible Steering Unit, Fill-Thru-Sight Gauge, Gasoline Gauge and Filler, etc.

Get catalogue and full particulars

THE MICHIGAN AUTO PRODUCTS COMPANY, Inc.,
Dept. "E", Ford Building, Detroit, Michigan
(Formerly the Ospeco Mfg. Co., Inc.)



CURTIS AIR FREE FROM OIL

The Curtis Compressor is the only one designed to prevent flooding the cylinder with more oil than it needs for lubrication. No excess oil is forced into the air line. **Oil ruins tires**—air free from oil means fewer blowouts and increased mileage all around for your customers. Make your place the most popular one in town. An easy and inexpensive way, is to install a Curtis Compressor. The customer assumes if you have the best free air service, you will have the best service in all departments.

Costs No More Than Ordinary Compressors—But Note The Difference

Live garages and service stations are using Curtis Air Compressors. Motorists expect free air service. Why not give them the best and win over new customers by supplying, not only reliable air service, but **Curtis Air—Free From Oil.** A poor air system which shoots oil into the tires, or which is unreliable, drives customers away. Thousands of Curtis Outfits are rendering daily, effective, efficient service all over the country. Your Curtis Compressor can further pay for itself by supplying air for air hoists, painting, cleaning, vulcanizing, blowing dust and drillings from tools, and many other things. Curtis Compressors are backed by manufacturers who have been specialists in this line for twenty-five years.



10 Combinations of Compressor and Tank Sizes—Any Current

Five Sizes—Tight Pulley Only, or Tight and Loose Pulley

11 Combinations of Compressor and Tank Sizes—Any Current



Makes New Customers—Holds Old Ones

Quickly pays for itself in bringing in new trade and holding the old trade, for it not only is the source of a dependable supply of air when your customers want it, but it also supplies clean, cool air—free from oil. Motorists realize that oil will quickly destroy their inner tubes, and, therefore, look for a station that supplies Curtis Air—Free From Oil.

Curtis Compressors are built to meet the requirements of your business in sizes, arrangements and prices. Send coupon at once for full information and attractive prices. It will pay you to investigate our proposition. *Write us today, or ask your jobber for prices—but insist on a Curtis.*

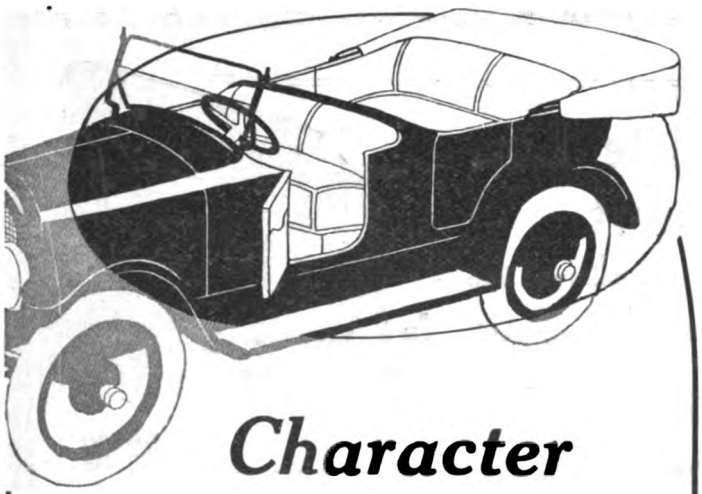
Curtis Pneumatic Machinery Co.
1546 Kienlen Avenue St. Louis, Mo.
531-R Hudson Terminal, New York

Curtis Pneumatic Machinery Co.
1546 Kienlen Ave. St. Louis, Mo,

Gentlemen: Please send me full details regarding Curtis Garage Air Compressor—your proposition and low prices.

Name.....
Address.....
Jobber's Name.....
Address.....

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Character

Invincible Seat Covers give character to motor cars—the same individuality demanded in wearing apparel—reserved dignity, yet carrying an apparent atmosphere of style.

When You Choose

Invincible

You Choose Wisely

The most expensive car becomes the more elegant, and the moderate priced car or the used car takes on a new refinement.

Perfect workmanship insures the smooth, glove-like fit, and only that material is used which combines rugged durability with the maximum of taste in pattern.

Even a supplementary feature such as binding is directed with every care for a finished product of superior merit. These bindings are genuine leather fabric, and the genuine leather fabric arm rests provide a fitting final touch to Seat Covers of Originality. This same sincerity in producing accessories of unexcelled service is represented in all products that bear the Invincible name.

Send for catalogue with samples of materials used. It will be of interest to you.

The Peters & Herron Dash Co.
77 Gift Street, Columbus, Ohio

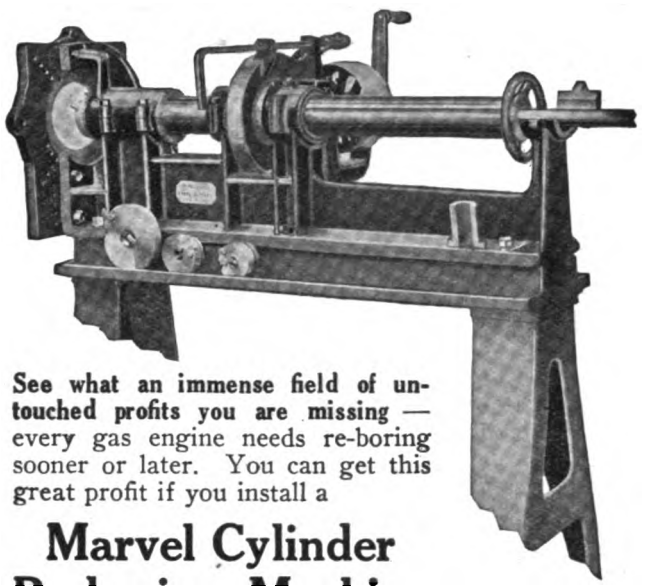


District Representatives

The manufacturer of a well-known automobile accessory will have several desirable District Agencies available very soon. Established business with jobbers and garages awaits a few high-grade men with moderate capital and the ability to create and maintain aggressive selling organizations. Possible curtailment in automobile production means greater demand than ever. Our National advertising and liberal dealer helps will get this business for you.

Address Box 12, Accessory Manufacturer, care of Motor World, Mallers Building, Chicago, Ill., for particulars.

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See what an immense field of untouched profits you are missing — every gas engine needs re-boring sooner or later. You can get this great profit if you install a

Marvel Cylinder Re-boring Machine

The only device that will do the work and bring you the profit—no other like it for *speed, accuracy, simplicity* of *operation* and *general efficiency.*

Will re-bore any block, 2½" to 8" in diameter, perfectly round and without taper, accurate to less than .001 of an inch.

Write for particulars and about the accurate fitting pistons we supply.

MARVEL MACHINERY CO.
1305 S. Third St., Minneapolis, Minn.

LEWIS VALVES Toledo

To Your Specifications

High quality materials and accurate workmanship are the two factors that make Lewis Valves stand ahead of the rest.

We make valves exclusively and can handle large or small orders. Lewis Valves will be made to your specifications if desired, but they will be heat treated by the Lewis method, which means long wear and more power.

Lewis Electric Welding & Mfg. Co.
TOLEDO, OHIO

DAYTON
QUICK DETACHABLE WIRE WHEELS
MADE UNDER LICENSE

For Ford and Chevrolet Cars

Quick Change and Economy

Dayton Wire Wheels appeal to the conservative owner because of the wonderful resiliency which gives 25% more tire mileage and lengthens the life of the car proportionately. The quick change feature of "Daytons" represents a definite saving of time to the busy man, as well as a matter of comfort when a tire change becomes necessary in zero weather.

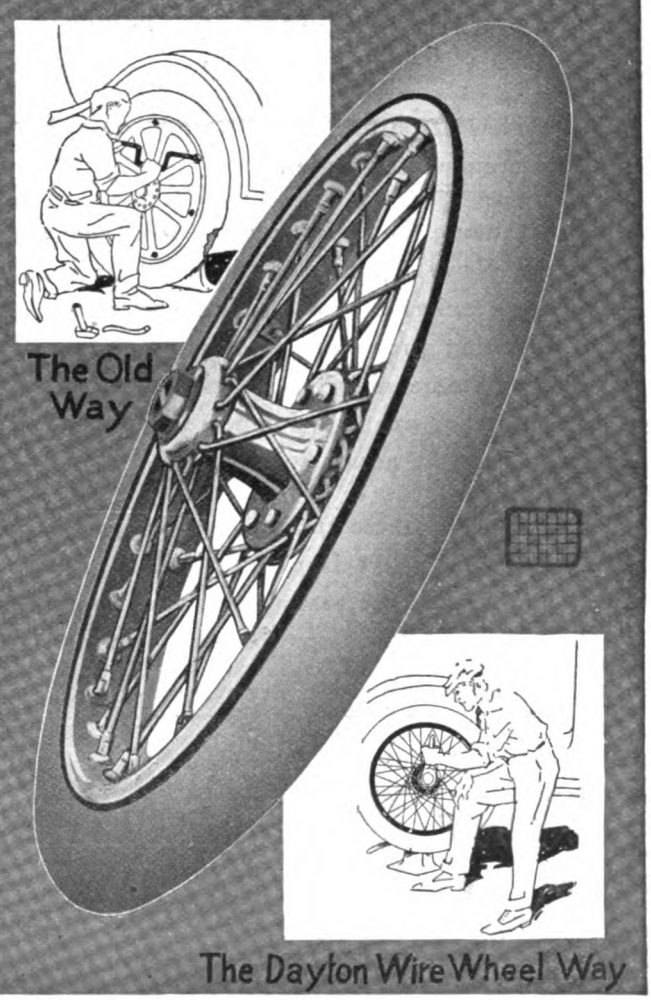
To change a tire the complete wheel is changed so that it is merely necessary to unscrew and replace the hub cap. The spare wheel is carried with the tire inflated, ready for instant mounting. Furnished in any desired color. "Daytons" add the last touch of elegance to the Sedan and Coupelet for winter use.

DEALERS AND JOBBERS

Dayton Wire Wheels insure more winter sales, more profits and more satisfied customers. Order to-day.

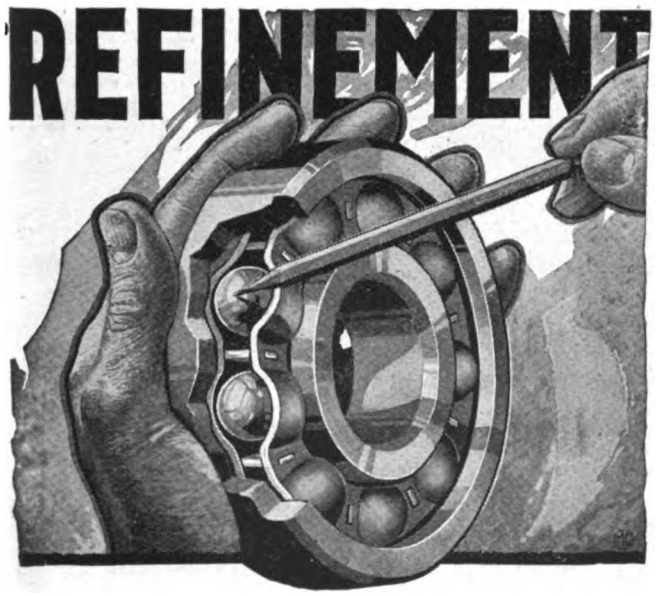
Deliveries Now!

THE DAYTON WIRE WHEEL CO.
826 Miami Road, DAYTON, OHIO



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REFINEMENT



THE quality refinements of New Departure Ball Bearings are years in advance of most American products.

Added to American genius for achievement, New Departure methods have sensed the advantages of profound study of detail.

New Departure Ball Bearings are rich in accumulated betterments.

Among the improvements which make the New Departure a superior bearing are—exclusive heat treating and manufacturing processes, exceptionally resilient chrome alloy steel, deep raceways, maximum size and number of balls and an exquisite accuracy of finish.

Add to these qualities prompt deliveries and New Departure service, and you have every reason why your choice should be New Departure Ball Bearings.

THE NEW DEPARTURE MFG. COMPANY, Bristol, Conn.

New Departure Ball Bearings

Conrad Patent Licensee

294

A MATTER OF QUALITY

YOU need the best of ignition to get the most out of your engine—most power, greatest serviceability.

WHEN Bosch Magnetos first displaced battery ignition, because magnetos are more reliable, they set a standard that has not been bettered.

BOSCH MAGNETOS

are built of the best materials by the most skillful workers. They require practically no attention in use.

When you buy

Be Satisfied *Specify Bosch*

Correspondence Invited

BOSCH MAGNETO CO., 224 W. 46th St., New York

Chicago **San Francisco** **Detroit**

Service Stations in Every State

IT PAYS FOR ITSELF

A prominent automobile manufacturer reports that he saves $3.20 on the handling of each automobile his factory makes, because of having installed a



RICHARDS-WILCOX OVERHEAD CARRYING SYSTEM

The average man can convey on a wheelbarrow or shop truck 200 to 500 pounds. The same man can handle up to 8,000 pounds with less effort by using a Richards-Wilcox Trolley or I-Beam Overhead Carrier. We make Overhead Carrying systems adapted to small or large requirements—from a stretch of straight trolley track with carrier and hoist for handling a few hundred pounds in small shops, up to the intricate system necessary for a great plant requiring track, curves, switches, turntables, carriers and hoists capable of transporting as much as 4 tons.

"Overhead Carrying Systems," published by the Richards-Wilcox Manufacturing Company, contains detailed information regarding Overhead Carrying Systems for various conditions, adapted to light or heavy loads. Sent without obligation.

Richards-Wilcox Manufacturing Co

SAN FRANCISCO LOS ANGELES NEW YORK CHICAGO

AURORA, ILLINOIS, U.S.A.

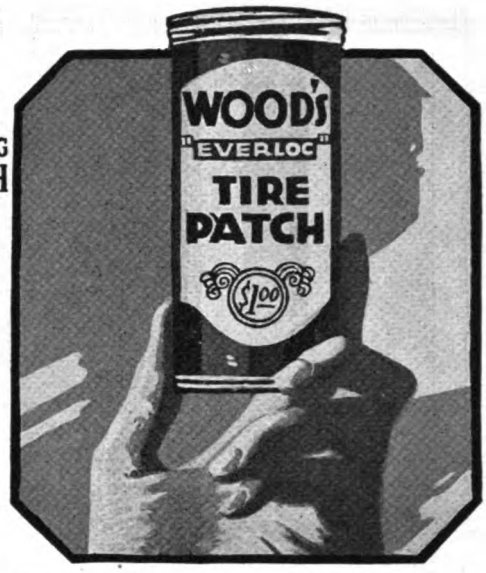
PHILADELPHIA MINNEAPOLIS BOSTON ST. LOUIS

Richards-Wilcox Canadian Co. Ltd. London, Ont.

"A hanger for any door that slides"

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THE ORIGINAL SELF-VULCANIZING TIRE PATCH



WOOD'S EVERLOC TIRE PATCH

WOOD'S EVERLOC is guaranteed to *permanently* repair any puncture or blowout up to 17 inches in length. And it will do it at approximately 1-20 the cost of heat vulcanizing.

No heat, tools or experience are required. Try it on our guarantee. At your dealers: 50c, $1.00, $1.50.

DEALERS: Write us or your jobber for proposition on Wood's Everloc today.

W. C. WOOD COMPANY
74 Western Avenue Minneapolis, Minnesota
Special Garage Size 20 x 28 inches

DUPLEX
THE ORIGINAL 4-WHEEL DRIVE TRUCK





Save Extra Auto Tax

Every ounce of energy wasted by leaky cylinders is an *extra* tax on your auto or truck. And that tax grows with advancing gasoline prices.

Stop this costly leakage with Ever-Tight Piston Rings.

Accurately machined from fine-grained, springy grey iron, they hug the cylinder wall closely without binding. Conform exactly to out-of-round cylinders, saving reboring. Gas can't leak through or by them.

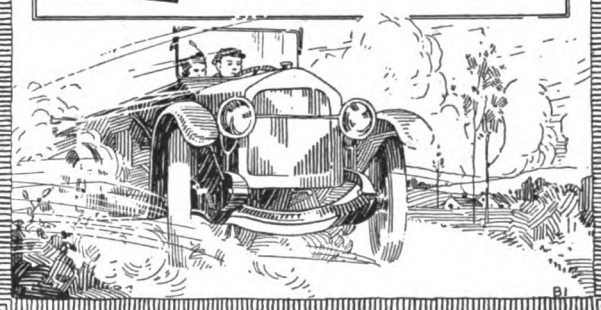
Ever-Tight Piston Rings are safeguards against imperfect combustion with resultant carbon deposits; against smoky exhaust resulting from oil leaks. They increase engine efficiency from 15% to 25%, thus reducing running expense.

Demand Ever-Tight Piston Rings
of your dealer or repair man.

EVER-TIGHT PISTON RING CO.
1430 Chestnut Street :: :: Saint Louis

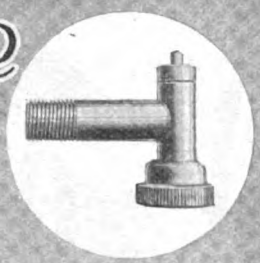


This perfect three-piece construction justifies the name—EVER-TIGHT. These close fitting right angles are absolutely gas tight.



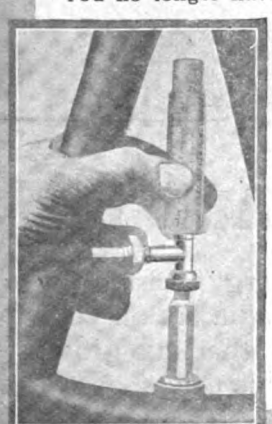
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No trouble to pump tire



Perhaps you have been neglecting the all-important matter of tire-pumping and air-testing because of the exertion it involved, the time it took, and the annoyance it caused.

You no longer have that excuse, for with a



Schrader Universal Pump Connection

tire-pumping and air-testing are now simple and easy operations.

Ask your dealer to show you how it works.

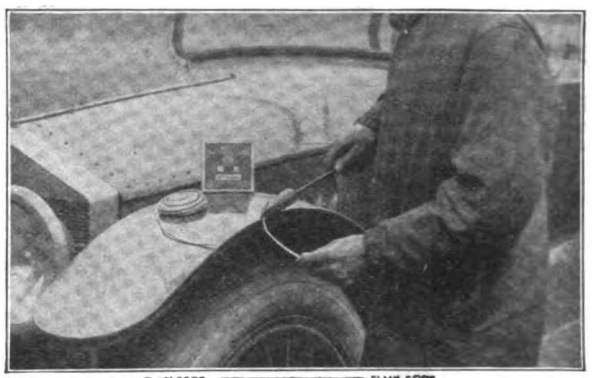
Price in U. S. A. Thirty-five Cents

At your dealer's or

A. Schrader's Son, Inc.

783-803 Atlantic Ave., Bklyn.

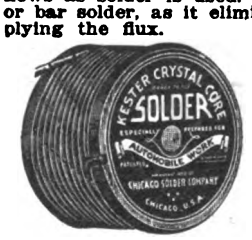
London Chicago Toronto





Kester Crystal-Core Wire Solder

is the most practical solder for automobile repair work. The solder is a hollow wire filled with an acid flux, which flows as solder is used. Cheaper to use than solid wire or bar solder, as it eliminates preparing, hunting or applying the flux.



Cleaner, Neater, Quicker

For spark plug and battery terminals, electric light connections, cracked fenders, gasoline pipe and tank joints, radiator leaks, speedometer flexible shaft, and the general garage uses.

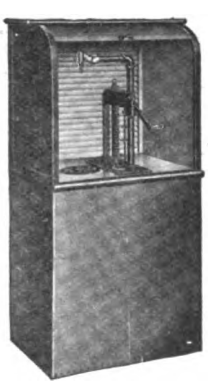
Sold in one pound coils in cartons and on one, five and ten pound spools.

Ask your jobber to supply you.

CHICAGO SOLDER CO.

CHICAGO ILLINOIS

When Cars Run Smoothly



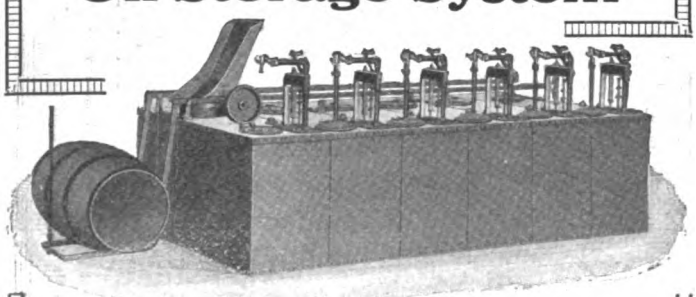
It is the result of proper care and attention to the grade and condition of the lubricating oils with which they are supplied.

To reduce friction, oils must be protected from dirt and grit; stored so that they retain their full value and lubricating qualities.

Be sure of the oils you feed your car—get your supply from the

BOWSER ESTABLISHED 1885

Oil Storage System



S. F. BOWSER & CO., Inc.

Sales Offices in All Centers FT. WAYNE, IND., U.S.A. Representatives Everywhere

Cored Bars

HIGH SPEED NON-GRAN BEARING BRONZE

For Bushings

AMERICAN BRONZE CORPORATION

BERWYN, PENNSYLVANIA

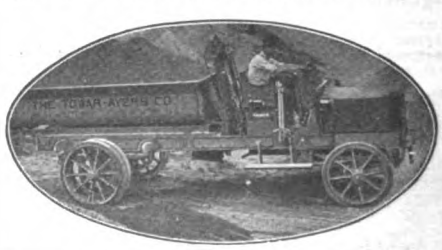
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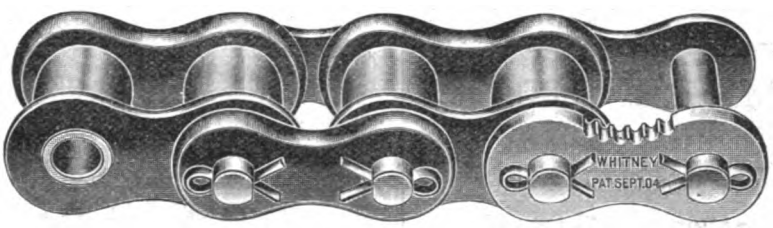
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COTTER TYPE
TRANSMISSION CHAIN
FOR MOTOR TRUCKS AND TRACTORS

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"Whitney" Chains are "doing their bit" on the battle fronts of Europe, where dependability is the all important factor and where failure may spell disaster.

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Gauge illumination with Radium Luminous Material is simple, effective and of little cost.

The Army and Navy use it on Airplane Instruments.

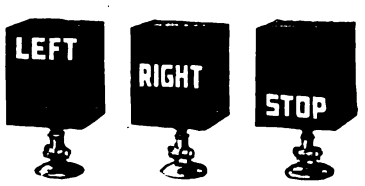
A little touch of Radium Luminous Material to the pointer of your gauges will make them visible in the dark for many years and will save much trouble.

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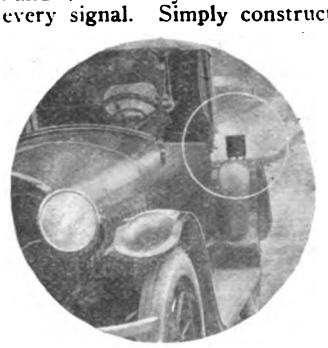


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One Signal box only on the left rear fender shows the words above in red, both front and rear—day and night.

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Price complete
$17.50

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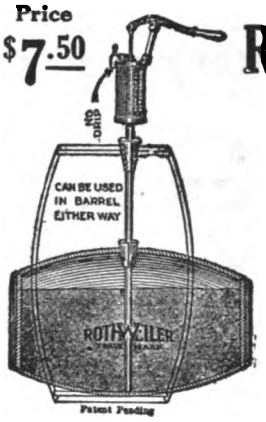
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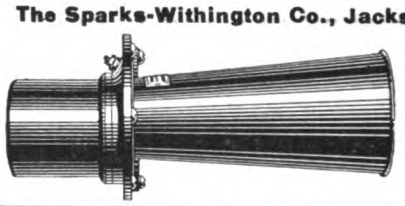
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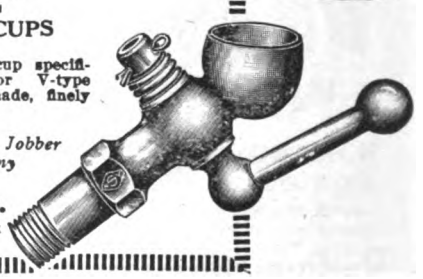
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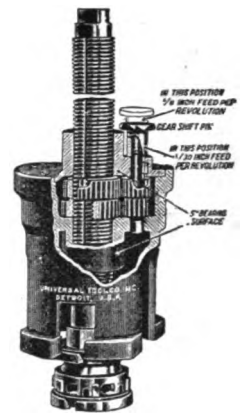
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Is Built to Guarantee Absolute Accuracy

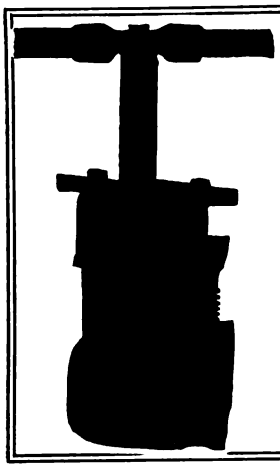
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1½ Ton Capacity

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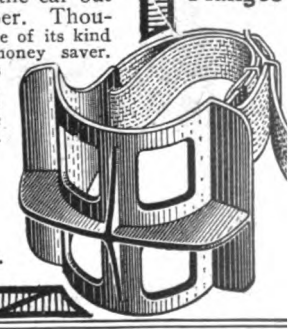
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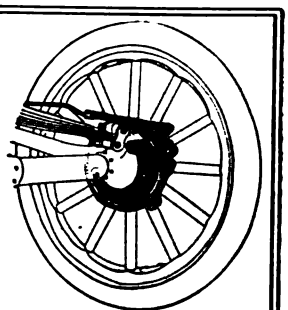
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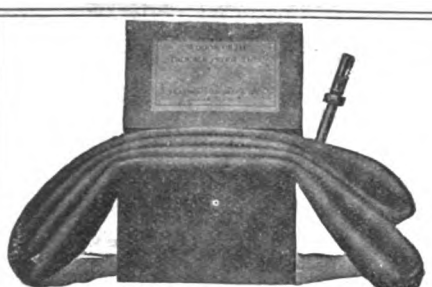
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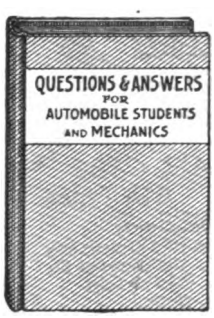
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"Westcott" is the original, adjustable "S" wrench—more convenient for motor work than any other wrench. "Westcott" superiority is shown by its popularity with the best mechanics. It is used in the Ford factories and by many other automobile concerns.

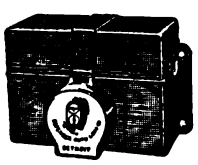
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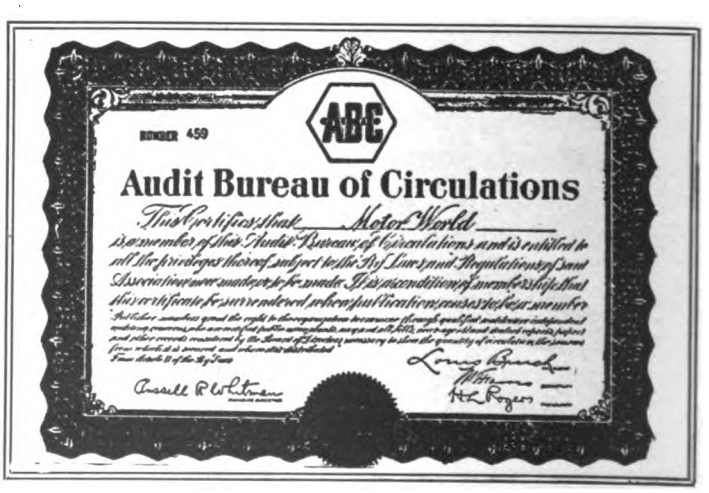
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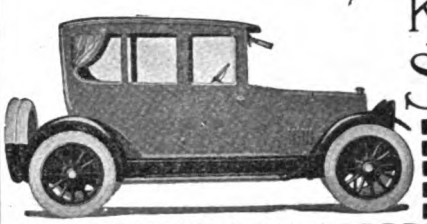
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4 Passenger
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EVERY INCH A CAR

WE MAKE THEM ONES NEW
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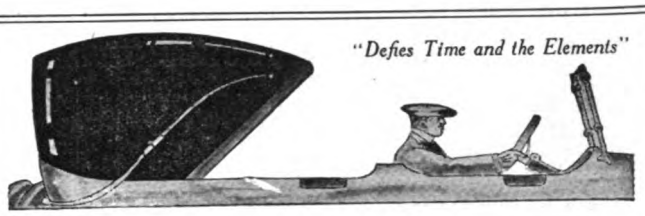
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YOU PUT IT IN THE GASOLINE

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Doc O'Kleen

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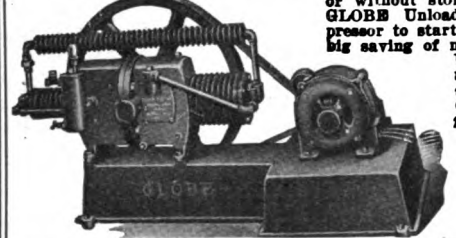
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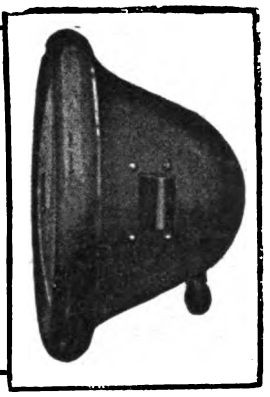
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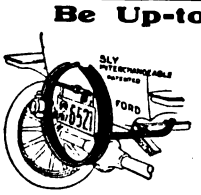
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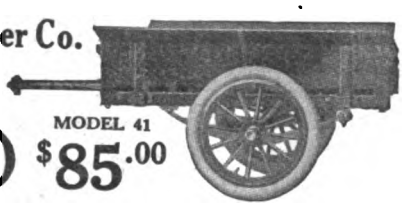
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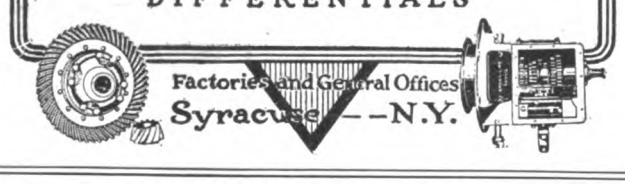
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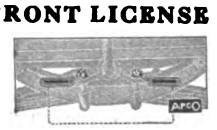
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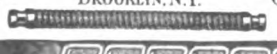
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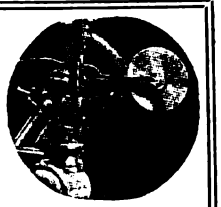
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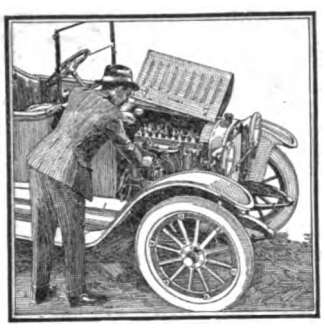
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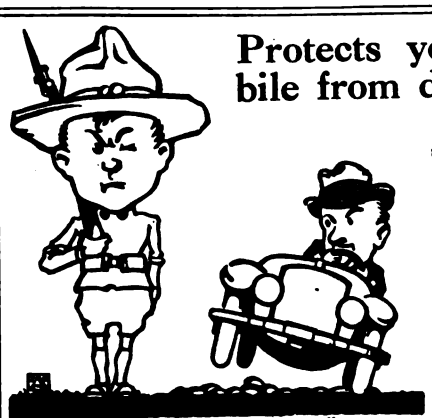
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COLUMBUS, OHIO

Machinery

MACHINE TOOLS
NEW AND SECOND HAND
BOUGHT and SOLD
New Jersey Machinery Exchange
21 Mechanic Street, Newark, N. J.

Machinery

Do You Want a Good Lathe

or any other kind of used machinery? Tell us about your machinery wants. We'll find the man who has just what you need. Address Classified Service Department, Motor World.

CONTRACT WORK

Advertisers in This Section Have Facilities at Their Disposal to Take on Additional Work on Contracts. Truck Specialties of All Kinds Manufactured on Contract Basis. Special Machinery, Press Work, Truck Machine Work, Foundry Work, Automatic Screw Machine Work.

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Malleable
Grey Iron

GIBBONS FOUNDRY & MACHINE COMPANY
Industrial Engineers
EXPERT TOOL AND DIE MAKERS
East 25th and Vale Streets, Des Moines, Iowa
WRITE *PHONE* *WIRE*

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Gear Cutting
Machine Parts
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Over 50,000 square feet of machine shop and foundry in connection.

An organization of MERIT, Insuring you of PROMPT and EFFICIENT SERVICE.

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Drawing, Blanking and Forming Dies—Tools
Gauges, Jigs and Fixtures

All Work Gauged by Johansson Gauging System
Promptness and Accuracy Guaranteed

Stampings of All Kinds

BUDD & RANNEY
Engineering Company
Columbus Ohio

Pattern Work for Airplanes

The Curtiss Airplane Co. profits by our Pattern Department. Why not you? Specialists in wood or metal—20 years' experience. Good work done quickly.

The Newark Stamping and Foundry Co.
Plant No. 2. NEWARK, OHIO

Automatic Screw Machine Products
Up to 2¼ in. Prompt Deliveries. Heavy volume

GRINDING TOOL WORK
SMALL GEAR SMALL
CUTTING STAMPINGS

Send blueprints and specifications.

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also
Machining, Polishing, Plating and Pattern Work
John Thomson Press Co.
253 Broadway Dept. H New York
FACTORY: Long Island City

Henry C. Griffin & Co., Inc.
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Wood Patterns. Metal Patterns.
Automobile Work a Specialty.
Models and Experimental Work.
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External, Internal, Surface and Cylinder
HOUPERT MACHINE COMPANY
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WANTED
METAL STAMPING AND PUNCH PRESS WORK
STANDARD METAL MFG. CO.
Chestnut, Jefferson & Malvern Sts.
Newark, N. J.

LET US BUILD YOUR BODIES

Limousine, roadster, touring car, speedster, truck, hearse and ambulance bodies built in our factory by experts, with new and modern equipment, FOR YOU. Best shipping facilities. On 3 big railroads. Let us submit an estimate on your requirements.

Address Charles E. Becker
THE JONES MOTOR CAR COMPANY
Wichita KANSAS

MANUFACTURING CONCERN
Brooklyn,

with full automatic and general machinery equipment, together with excellent factory facilities, is in position to take on the manufacture of a good specialty.

Address Box Y 228, care Motor World.

Hundreds of Machine Shops Are Ready for Contract Work.

Tell us your needs and we will find the shop that will handle the work for you. Motor World Contract Work Department, 239 West 39th Street, New York.

If your manufacturing requirements cannot be handled by firms now advertising, we should appreciate the opportunity of locating a firm that can render such special service as your business may demand. Our investigation of the contract situation as it now stands places us in a position in which we can be of valuable service to the manufacturers of the automobile industry. If interested, please communicate with the Contract Work Department, Motor World, 239 West 39th Street, New York City.

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It Started With the Black Horse Cavalry



THIS is the caption of a page story - advertisement which will appear in the Saturday Evening Post of February 9 and Collier's Weekly of February 23. It is addressed to your customers.

It tells, in a plain, unvarnished way, the development of the Billings & Spencer Company and the underlying ideals and principles which made possible this gratifying growth and expansion.

We believe this page will be of interest to you as a Billings & Spencer dealer, to you as a user of Triangle B. Trademark products, or to you as a potential user to whom quality plus is significant. We commend it to your attention.

THE BILLINGS & SPENCER CO. HARTFORD, CONN. U.S.A.

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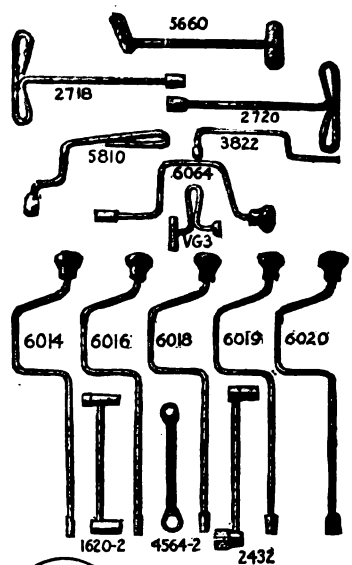
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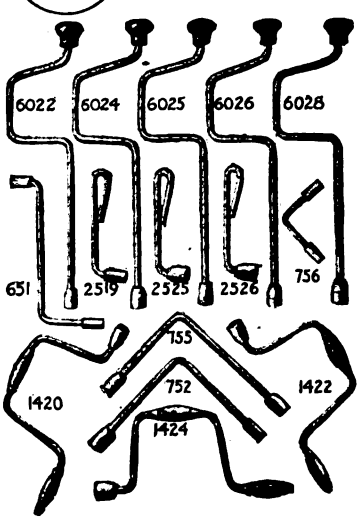
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No. 30 GARAGE SERVICE Sets



WALDEN WORCESTER WRENCHES

Nº 30 GARAGE SERVICE SET



A WRENCH combination perfectly adapted for work on any motor car, with which time and labor cost to the customer may be economized, and the productiveness of the shop and its facilities largely increased.

These are special tools, designed after careful study of garage service, each serving a specific purpose and having qualities necessary for thoroughly good work.

These 30 wrenches, some with two sockets, are equivalent to 39 different sizes and types, as follows:

Offset Wrenches....13
Speed Wrenches....10
L-Wrenches 6
Special Wrenches... 5
Demountable Rim Wrenches.. 3
Tee-Handle Wrenches.. 2
Total.....39

The combination was made to fit all popular makes of cars—to work wherever particular type wrenches are necessary. Every condition that makes for economy and time saving has been anticipated and utility provided for.

With the No. 30 Garage Service Set you will have every wrench you will need. Your equipment will be standardized. The quality of work insured.

List Price, $20

Walden-Worcester
INCORPORATED
Worcester, Mass.

WALDEN WORCESTER WRENCHES

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PAIGE

The Most Beautiful Car in America

"ALL SET"

January sales have given the lie to December alarms. The two big shows —New York and Chicago—have told their story—a story of enthusiasm, restored confidence and real business. There isn't a motor car dealer—at least an intelligent one—in the country today who doesn't know that the industry will "carry on" tranquilly, profitably, irresistibly in 1918.

Irresponsible newspaper stories were mainly to blame for the ridiculous alarms of November and December. When the government and the real leaders of the motor car industry got together, it didn't take long to come to an understanding. The government today knows precisely what the motor car manufacturers *can do*. And the motor car manufacturers know precisely what *they are going to do*.

That alarm—although perfectly needless—was by no means a bad thing for the industry—or *for you*. It proved one thing—a vastly important thing—and it was proved by the people of this country to Washington's satisfaction. It proved that the motor car is not a joy-riding luxury any longer—but an indispensable utility—a means of swift, economical transportation necessary to maintain our business efficiency—at a time when it must be maintained. *Remember that in your own selling.*

As a result the motor car is here to stay —which means that sales are here and here to stay.

However, we must not forget this: While the American people in 1918 are going to buy motor cars liberally, they are also going to buy them *intelligently*. They are going to buy only the best cars, the best value, the best service and buy them only from *the best companies*.

Never in the history of the industry has it been so imperatively necessary for the dealer to look well into the foundation of the company whose product he sells, whose policies he represents and on whose wisdom and strength he is to live or perish—as it is now.

We don't send our boys "over the top" without an aviation corps to tell them what they're up against and direct their fire; without artillery to smash the opposition; without reinforcements to help them hold their gains; without guiding wisdom and heroic assistance to see them through to victory.

The Paige is ready to do that in this War Year of 1918 for all Paige Dealers. Paige Cars for everybody and all Paige Cars will be sold. We are "all set."

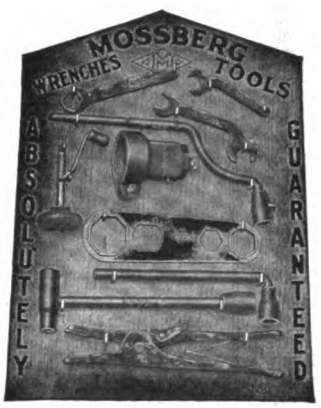
PAIGE-DETROIT MOTOR CAR COMPANY, DETROIT, MICH.

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MOSSBERG
MOTOR TOOLS

TRADE MARK

Make Friends of All the Drivers—And a Good Profit For You



SELL a motorist a Mossberg Tool, no matter what it is, and he'll always have a warm spot in his heart for you—because you have given him the most value his money can possibly command. He'll come back. Yes, and he'll bring his friends with him.

Mossberg Wrenches and Tools are the essence of dependability—



Display Board For Fords

Ford owners are always looking for new, useful tools. This board contains 10 Ford necessities every driver must have. Display it and he can't resist. Every tool is guaranteed and your profit is good, as this "R" Board comes free with 27 wrenches that sell for

$12.00

GUARANTEED ABSOLUTELY

to stand up to the job. You ought to have our display boards in your place right now. Let's get together—what do you say?

Another Catchy Display Board

This is a fine board of high-class adjustable wrenches, something everybody needs. When they see it they buy—that's all there is to it. Every wrench guaranteed. This "T" board supplied free with 23 wrenches. Big profit, as they sell for

$13.00



$13.50

Mossberg Wrench Set No. 14 An All-Around "Hummer"!

You never spent less money and got more in your life than this No. 14 set offers you. For making quick repairs and adjustments it stands supreme. Here's what it contains:

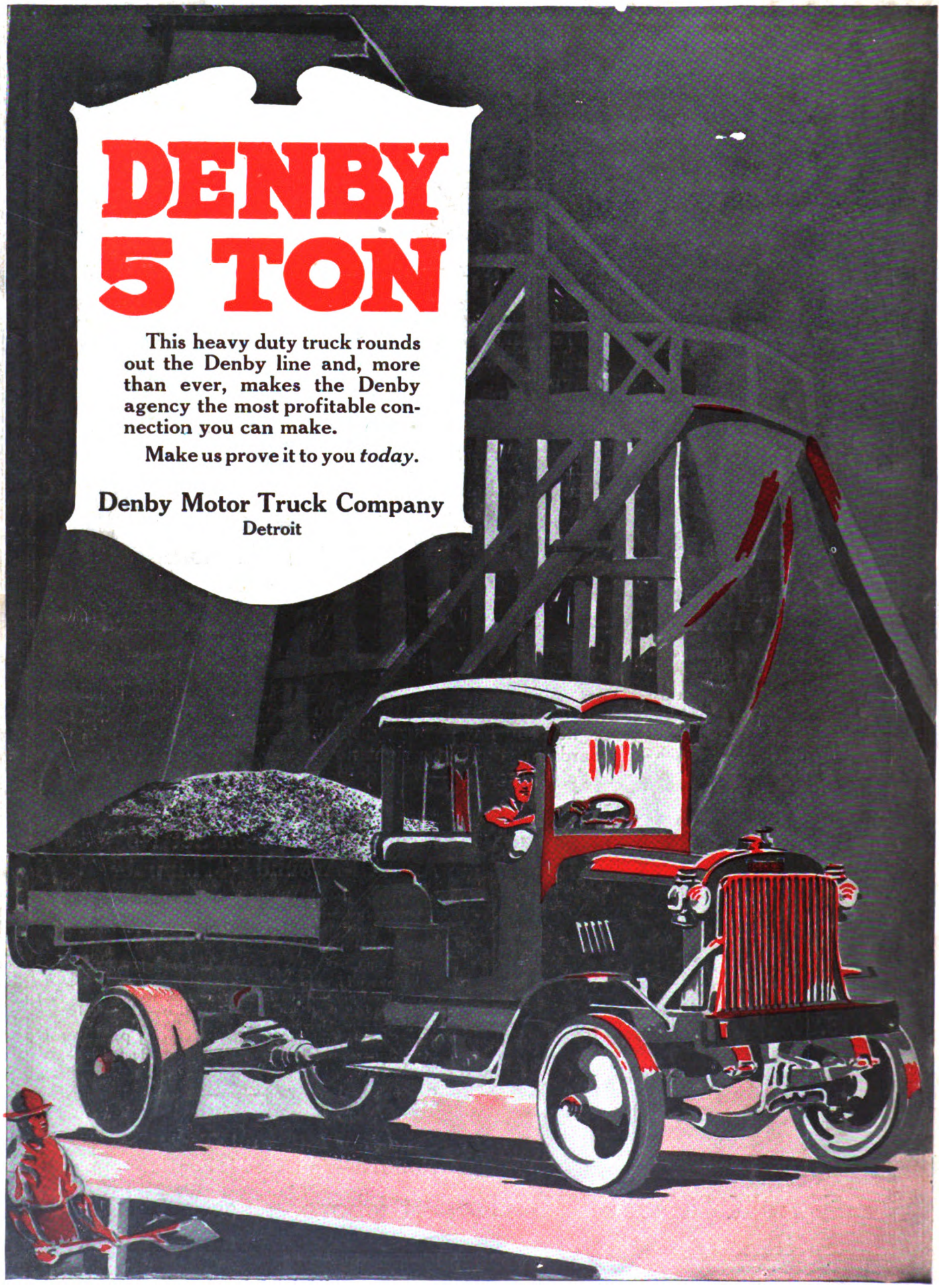
Reversible Ratchet Wrench—Offset Handle—Takedown Handle and Extension Bar — Pipe Wrench—Pliers—Five D.E. Wrenches, with milled openings 1/4" to 1"—Cotter Pin Puller—Universal Joint—Screw Driver Bits—Three Special Spark Plug Sockets and Thirty-four Guaranteed Pressed Steel Square and Hexagon Sockets, graduated by 32nds, from 5/16" to 1 9/32".

Can you beat it! And—look—the price is only $13.50.

Send For Big Full Tool Catalog No.191-1—You Need It For Reference

FRANK MOSSBERG CO., Attleboro, Mass., U. S. A.

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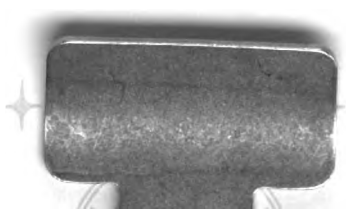
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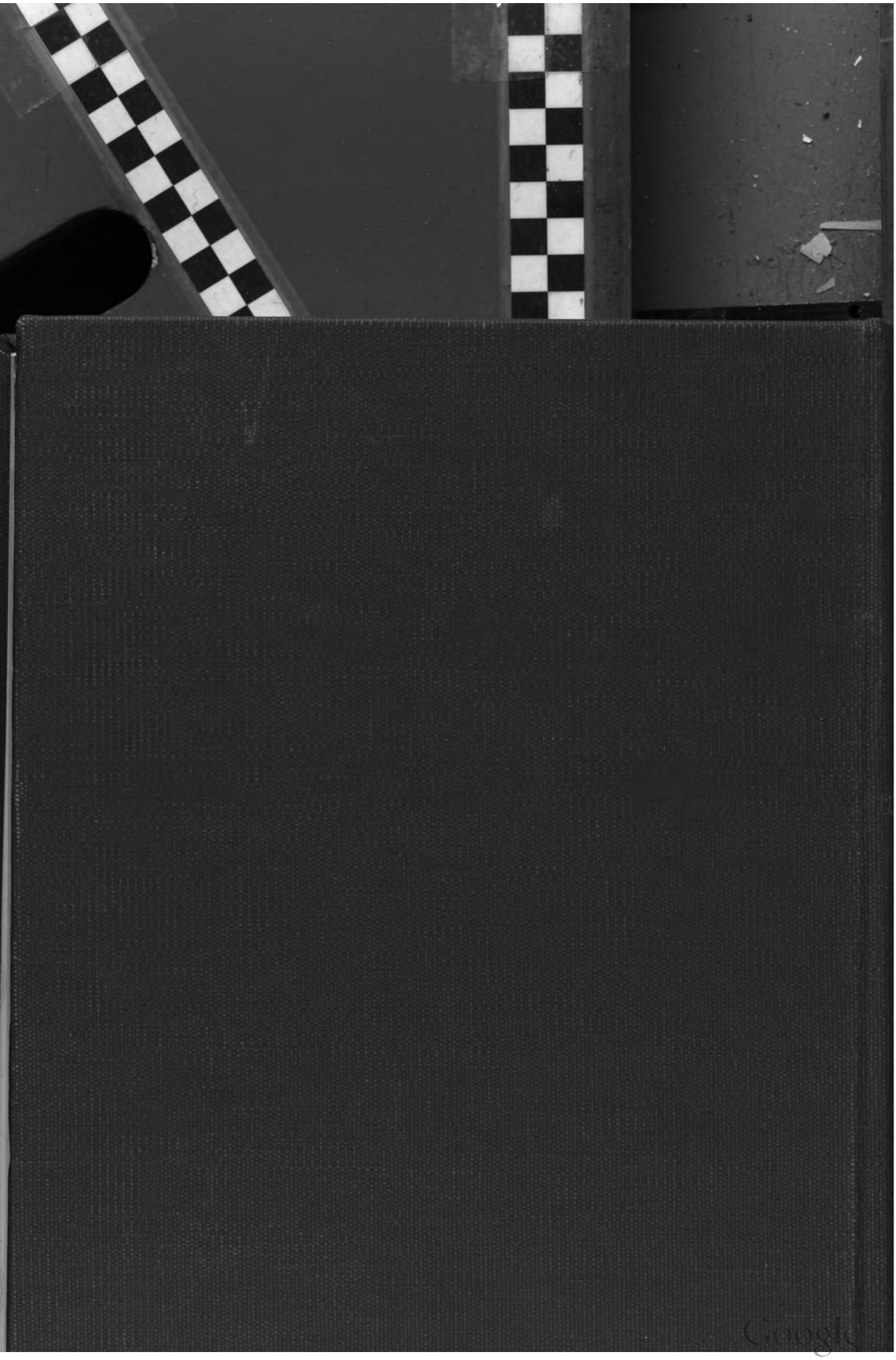
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